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INTERPERSONAL COMMUNICATION FACTORS IN THE SUPERVISORY RELATIONSHIP THAT PLAY A ROLE IN ENHANCING OCCUPATIONAL THERAPY STUDENTS' CLINICAL REASONING DURING PHYSICAL FIELDWORK EDUCATION

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DECLARATION

Ethical clearance number: 134/2006

I Marianne de Beer, hereby declare that the work on which this thesis is based, is original (except where acknowledgement indicates otherwise) and neither the whole work nor any part of it, has been, is being, or shall be submitted for another degree at this or any other university, institution for tertiary education or examining body.

Signed

Date

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ABSTRACT

Learning outcomes for students whose education takes place in the physical field are, among others, knowledge and skills to implement the occupational therapy process. In this process patients' problems are assessed and recorded, treatment planned, implemented, continuously evaluated, and the progress of each such patient professionally recorded. Since this is a process which requires distinct clinical reasoning skills on the part of the student various factors can influence the development of such skills during their training. Many authors are of the opinion that it is the interpersonal communication between supervisor and student which underpins successful fieldwork education.

In this study the purpose therefore was to investigate how the interpersonal communication factors in the supervisory relationship play a role in enhancing occupational therapy students' clinical reasoning during physical fieldwork education.

At the outset a partially mixed, sequential dominant, status-qualitative design was employed. An inter-subjective or interactional epistemological position was adopted in order to generate data from the participants' subjective experiences, and an interpretive approach was used to understand how occupational therapy students and supervisors perceive the supervisory relationship during the formers' learning of their clinical reasoning skills.

Data was generated from four sources. First of all, from focus groups conducted separately with students and their supervisors on completion of the fieldwork block; secondly from semi-structured one-on-one interviews held with students as well as supervisors on completion of the formers' fieldwork block; thirdly from students' Work Habits Reports, and finally by recording the practical exam grades students obtained in the physical field.

To analyse the data both qualitative and quantitative research methods were employed. Information obtained from the focus groups and one-on-one interviews were audio-taped and transcribed. After this process, transcribed data was coded and analysed following both a bottom-up and top down approach. The former was carried out by an independent coder and the latter by the researcher herself to determine which interpersonal communication themes and patterns might emerge

from the collected data. A clinical psychologist using the Interpersonal Pattern Analysis, a diagnostic instrument, analysed the audio tapes of 14 supervisors who participated in the focus groups and one-on-one interviews. The themes which emerged from the thematic-content analysis and the Interpersonal Pattern Analysis were compared with the grades students obtained for their clinical reasoning skills in the final practical exam in the physical field.

The findings of this study indicated that supervisors of students who received high grades solved problems effectively, were predominately linear in their approach, showed only limited empathy, were rigid in their expectations and gave only limited confirmation. In line with these findings supervisors of students who received lower grades were also effective in terms of problem solving skills and also gave limited confirmation, but were circular in their approach, showed partial empathy and were flexible.

Finally in respect of the interpersonal approach to human behaviour there is no one role or pattern of interaction that is more effective in all contexts. A style or a pattern that may be highly effective in one kind of relationship may be ineffective in another. What is emerging here though is that a style which is characterised by flexibility and empathy may not necessarily be an effective teaching style, whereas a style characterised by a linear approach and limited empathy did indeed prove to be significantly more effective.

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CHAPTER 1

1. INTRODUCTION

Occupational therapy is one of a number of health professions concerned with health care. What makes the profession unique is its central focus on the therapeutic use of everyday activities in order to prevent, remediate or rehabilitate dysfunction by offering patients or clients the opportunity to reach their optimum level of functioning by participating in, adapting to and mastering their world (Duncan, 2011; Evans, 1987)

Since the profession's inception at the beginning of the 20thcentury it has been a fundamental belief that participation in occupation or activities had a curative effect on the body, mind and spirit (Molineux, 2004; Foster, 2002). From the 1900s to the 1950s the emphasis was mainly on the use of activity to restore function (Molineux, 2004; Clark, Wood, & Larson, 1998; Hagedorn R. , 1995). Between the 1950s and the 1980s this thinking changed under the influence of the reductionist model of science or mechanistic paradigm, "which was then adopted by all the life sciences in an attempt to become scientifically respectable" (Creek, 2008, p. 33). In terms of this paradigm the patient's ability to function depended on body systems which, if damaged or delayed, could be remediated or compensated for so that function could be restored. By adopting the reductionist approach occupational therapists of necessity had to develop a great depth of expertise in various fields of practice, and since the 1980s there has been a move as a result of this towards a holistic approach in the treatment of patients (Molineux, 2004; Foster, 2002).

At present the fundamental beliefs in occupational therapy are first of all, that treatment should be client-centred (Law & Mills, 1998) so that clients can take an active role in their treatment, i.e. "to do for themselves" (Mattingly & Fleming, 1994, p. 178), and secondly, that since occupation is central to humans, or to put it otherwise, that humans have an occupational nature (Taylor, 2001; Kielhofner, 1992), when they experience occupational dysfunction (Molineux, 2004; Kielhofner,

1992), occupation can be used as a therapeutic agent (Royeen C. B., 2003; Clark, Wood, & Larson, 1998; Kielhofner, 1992).

For such patients to reach their maximum desired level of occupational functioning the occupational therapist should engage patients from the outset to participate in meaningful occupation in order for the healing process to take effect (Molineux, 2004; Taylor, 2001; Clark, Wood, & Larson, 1998; Du Toit V. , 2009).

Since the needs of patients in terms of meaningful occupation are highly individual, the planning and implementation of creative intervention strategies require considerable knowledge and skill on the part of the therapist (Rogers & Holm, 1991; Du Toit V. , 2009). The occupational therapy process is therefore not choosing a predetermined procedure with meaningless or repetitive exercises, but is instead a circular, on-going, thinking and doing process which requires particular problem-solving skills in order to facilitate goal achievement (Royeen C. B., 2003; Rogers & Holm, 1991). The entire process known as *clinical reasoning* in occupational therapy is both complex and multifaceted (Mattingly & Fleming, 1994; Schell & Cervero, 1993; Rogers & Holm, 1991; Rogers J. C., 1983) and comprises scientific (Rogers J. C., 1983), interactive (Mattingly & Fleming, 1994; Schell & Cervero, 1993), narrative (Mattingly C. , 1991), pragmatic (Schell & Cervero, 1993), ethical (Rogers J. C., 1983) and conditional reasoning (Fleming, 1991) which can only be developed by means of higher education (Bonello, 2001).

At the University of Pretoria an Accredited Educational Programme for the education of occupational therapy students, registered at the South African Qualifications Authority (SAQA) with a National Qualification Level (NQF) 8 is followed. This programme extends over four academic years. The purpose of the qualification is to prepare students to become professional entry level occupational therapists.

The teaching approach changed in 2000 from what was mainly a teacher directed style to a student-directed, problem-based approach. Problem-based learning is characterised by developing the students' critical, innovative and practical thinking skills in order to enhance their clinical reasoning skills. In essence clinical reasoning could thus be said to be a problem-solving process (Azar, 2001; Hammel, et al., 1999).

At the University the curriculum is designed in such a way that there is a progression in the teaching and learning of clinical reasoning skills from the students' first to fourth years. During their first year students start to learn about the theoretical concepts of clinical reasoning. In their second year the emphasis is mainly on scientific reasoning which comprises both occupational diagnostic reasoning or assessment and basic procedural reasoning or intervention skills. From the third to the fourth year the application of clinical reasoning is extended with the emphasis on a wider variety of conditions and areas of functioning, thus taking more modes of reasoning such as ethical reasoning into account. The acquisition of competency in their clinical reasoning is however to a large extent developed during the students' fieldwork education under the supervision of a registered occupational therapist (Bonello, 2001).

Ever since its inception the fieldwork education of occupational therapy students at the University was designed to give each student under the guidance of a registered occupational therapist the necessary experience to plan and execute total treatment programmes for patients with a variety of conditions. In the final year students are required to complete five fieldwork blocks. Owing to the number of students and limited fieldwork placements they rotate between the various fields. To illustrate the rotation an example of what three particular students' fieldwork timetables could be like is presented in Table 1-1: Final year student fieldwork programme.

Table 1-1: Final year student fieldwork programme

Fieldwork	Fieldwork I	Fieldwork II	Fieldwork III	Fieldwork IV	Fieldwork V
Time of year	January – March	April - May	May - June	July - August	August - September
Duration	7 weeks	6 weeks	4 weeks	4 weeks	6 weeks
Student a	Physical	Community	Paediatrics	Vocational Rehabilitation	Psychiatry
Student b	Psychiatry	Physical	Paediatrics	Vocational Rehabilitation	Community
Student c	Community	Psychiatry	Vocational Rehabilitation	Paediatrics	Physical

There are a number of factors that could have an impact on the development of the students' clinical reasoning skills during their fieldwork education. Several authors maintain though that it is the interpersonal communication between supervisor and student which underpins successful fieldwork education (Chur-Hansen & McLean, 2006; Stormont, 2001; Hummell, 1997; Barr, 1987; Christie, Joyce, & Moeller, 1985b). Barr (1987) presents a strong argument for this when she says that "a good relationship between student and supervisor is surely the foundation of any learning process."

1.1 Identification of the problem

From the previous argument it is clear that clinical reasoning is one of the core professional behaviours to be mastered by occupational therapy students and that interpersonal communication between supervisor and student underpins the successful fieldwork education required for this.

Even though various studies on the supervision of occupational therapy students during their fieldwork education was internationally and nationally investigated (Bonello, 2001; Hummell, 1997; Kumbuzi, Chinhengo, & Kagseke, 2009) no published research could be found on how the supervisors' interpersonal communication patterns impact on the clinical reasoning ability of occupational therapy students.

In the South African context with its cross-cultural paradigms, diverse value systems and backgrounds fieldwork education of final year occupational therapy students often poses a challenge to those involved.

In view of this it seemed necessary to investigate how the interpersonal communication patterns of supervisors in the South African context enhance the ability of their occupational therapy students to apply clinical reasoning skills during their fieldwork education.

1.2 Research question

The primary question for this research study therefore solicited an exploration into the interpersonal communication patterns of supervisors and is formulated as follows:

What are the interpersonal communication factors (independent variables) in the supervisory relationship that play a role in enhancing occupational therapy students' clinical reasoning (dependent variable) during physical fieldwork education?

1.3 Purpose of the study

The purpose of the study will be to examine interpersonal communication factors in the supervisory relationship that play a role in enhancing occupational therapy students' clinical reasoning during physical fieldwork education.

1.4 Significance of the study

1.4.1 Development of students' professional behaviour

Professional behaviour in occupational therapy requires sound knowledge, skills and values which include, amongst others, empathy, dependability, professional presentation, verbal communication, initiative and clinical reasoning (Kasar & Muscari, 1999). The findings of the study may well suggest which interpersonal communication factors in the supervisory relationship might be beneficial in order to steep occupational therapy students in clinical reasoning, and in doing so enhance their professional behaviour.

1.4.2 Supervision

The findings are expected to acquaint supervisors on how to employ interpersonal communication strategies during physical fieldwork education with the intention of enhancing the occupational therapy students' ability to apply clinical reasoning skills. This information will direct the subject matter of the supervision workshop which is presented once a year at the Department of Occupational Therapy, School of Health Care Sciences, Faculty of Health Sciences of the University of Pretoria.

1.4.3 Health care

Everyone has the right to health care services according to Section 27 (1) (a) in the Bill of Rights in the Constitution of the Republic of South Africa (Goverment Gazette (No. 17678), 1996).

Every patient and client therefore has the right to receive quality occupational therapy where applicable (Clouder & Sellars, 2004). In order to ensure that the best care is provided, it is the obligation of the Occupational Therapy Department of the University of Pretoria to equip occupational therapy students with sound clinical reasoning skills. The findings of this study are therefore expected to enhance the training of such students in clinical reasoning.

1.4.4 Contribution to the scientific body of knowledge

The study will explore interpersonal communication factors in the training of occupational therapy students, an area that has not previously been investigated in depth, and the findings are therefore expected to have an impact on the fieldwork education of occupational therapy students at the University of Pretoria. It could also be of value on a national as well as international level for occupational therapy training institutions.

1.5 Dissemination of research results

Articles of peer review on the results obtained will be published in recognised occupational therapy journals, both in South Africa and abroad.

Results will also be presented at national and international conferences and workshops.

1.6 Delimitations

Student participants for the study were limited only to those from one university in South Africa where occupational therapy training is offered.

Supervisor participants were limited to those supervising these students in both public and private hospital settings in the physical field.

Only Caucasian students' findings and results were included in the data analyses, the reason being twofold: First of all, in the planning of the research study, there were only three African students which is not a representative sample on which to base meaningful findings and results. Secondly, because including another cultural group would bring in a variable that would be difficult to quantify in terms of its effect on the study. This hypothesis is in line with Teffo and Roux's notion that "In Western philosophy the starting-point for an account of personhood is usually epistemological and psychological. Knowledge is the possession of a particular individual … how the individual sees him/herself from the inside", but "in African thinking the starting-point is social relations – selfhood is seen and accounted for from this relational perspective" (Teffo & Roux, 1998, p. 145).

The research study was conducted during each one of the three physical fieldwork education blocks as timetabled by the Department of Occupational Therapy only for the year 2007 (Table 1-1).

1.7 Assumptions

An assumption is an idea believed to be true without proving that it is so (Polit & Beck, 2010; Hofstee, 2009). The assumptions for this study are the following:

Clinical reasoning

Sound theoretical knowledge and the application of such theory in occupational therapy is a prerequisite for effective clinical reasoning.

Interpersonal communication

In any communication situation the source and the receiver are interdependent (Berlo, 1960).This assumption is also held by Vorster (2003, p. 101) who believes that individuals who interact with one another impact on each other "often without the individual involved registering this".

1.8 Definition of key terms

Interpersonal communication

Interpersonal communication is defined by Vorster (2011, p. 113) as "the accurate conveying of a message from one individual (the sender) to another (the receiver) through verbal and non-verbal signals, the message being the information that is being conveyed from the sender to the receiver" and in addition asserts that interpersonal communication at all times "takes place within a particular context".

Supervisory relationship

The supervisory relationship in fieldwork education is defined by Cohn as "a dynamic teaching-learning relationship" between students and fieldwork supervisors (Cohn, 1993, p. 17).

According to Loganbill, Hardy and Delworth (1982) the supervisory relationship is “an intensive, interpersonally focused one-on-one relationship in which one person is designated to facilitate the development of therapeutic competence in the other person”. Since the one-on-one relationship between the supervisor and the student is a critical component of fieldwork education the above definition by Loganbill, Hardy and Delworth (1982) will be employed in this study.

Occupational therapy

Various definitions of occupational therapy are available, some simplistic and others very complex, yet all contain the essence of the profession.

First of all, in trying to explain what occupational therapy is Creek (2002, p. 587) defined it as “the restoration or maintenance of optimal functional independence and life satisfaction through the analysis and use of selected occupations that enable the individual to develop the adapted skills required to support his life roles”. In this definition it is clear what the goal of occupational therapy is and the unique means by which results are achieved, viz. involving the client in occupations to maintain or restore independence.

Secondly, according to the World Federation of Occupational Therapists (2003, p. 1) occupational therapy is “a health discipline which is concerned with people who are physically and/or mentally impaired, disabled and/or handicapped, either temporarily or permanently. The professionally qualified occupational therapist involves the patients in activities designed to promote the restoration and maximum use of function with the aim of helping people to meet the demands of their working, social, personal and domestic environment, and to practice life in its fullest sense” (World Federation of Occupational Therapists, 2003)

And as a third example, according to the Occupational Therapy Association of South Africa (OTASA), “occupational therapists use scientifically chosen meaningful activities to assist diverse clients with a range of problems to maximise their functioning. This empowers them to be as independent as possible and to experience dignity and quality of life at work, at home and at play” (OTASA, 2003). Although concise, this definition encompasses a client-centred approach, the use of activities as a treatment modality and various modes of clinical reasoning, such as

scientific (scientifically chosen activities), narrative (client's quality of life at work, at home and at play"), interactive (meaningful activities) and ethical reasoning (which empowers clients to be as independent as possible and to experience dignity).

For the purpose of the study OTASA's definition has been selected since it implies and encompasses the science, art and ethics employed in occupational therapy to promote and/or restore the patient's maximum function so that he/she can live life in its fullest sense.

Clinical reasoning

A number of definitions of clinical reasoning are available and although they are phrased differently every one puts the emphasis on the reasoning process rather than the modes of clinical reasoning.

Royeen et al. (2001, p. 108) define clinical reasoning as "the reflective thought process that therapists undergo to integrate client evaluation information and to develop and implement intervention plans".

Schell (2003, p. 131) on the other hand defines clinical reasoning as "the process used by practitioners to plan, direct, perform and reflect on client care".

Unsworth also emphasises the process of clinical reasoning when she states that it is "the reflective thinking associated with engaging in a client-centred professional practice" (Unsworth, 2011, p. 211).

For the purpose of this study clinical reasoning will be defined as the reflective thinking process that guides the therapist in his/her scientific, narrative, interactive, pragmatic, ethical and conditional reasoning on patient care.

Physical fieldwork education

Fieldwork education can be defined as "an integral part of the professional development of future occupational therapists and an essential link between the academic world and practice" (Farber & Koenig, 2008).

Fieldwork education is also described as a shift of focus from classroom education to where it becomes the integration of theory into practice (Allison & Turpin, 2004).

For the purpose of this study the following working definition of physical fieldwork education will be employed:

Physical fieldwork education forms an integral part of the development of students' clinical reasoning, professional behaviours and competency under the supervision of registered occupational therapists.

1.9 Abbreviations and acronyms

ART 401	Occupational Therapy 401 (Arbeidsterapie 401)
EoT	End of Term
GST	General Systems Theory
HEQF	Higher Education Qualifications Framework
HPCSA	Health Professions Council of South Africa
IPA	Interpersonal Pattern Analysis
M-T	Mid-term
OT	Occupational therapy
OTASA	Occupational Therapy Association of South Africa
SAQA	South African Qualifications Authority
WFOT	World Federation of Occupational Therapy
WHR	Work Habits Report

1.10 Chapter overviews

Following on Chapter 1 (already covered), Chapter 2 will focus on the literature that are relevant to the study, viz. clinical reasoning, physical fieldwork education, interpersonal communication in the context of fieldwork education, and finally the assessment of clinical reasoning in the students' practical exam.

Chapter 3 will cover the research design of the study and will consist of two parts, viz. the research design and the method used. The research design will be described first to indicate how the research was planned, followed by the method used in the execution of the research.

In Chapter 4 the findings and results will be presented and discussed as follows:

- Demographic profile of the supervisors and students in the sample.
- Grades students obtained in their practical exam for their clinical reasoning skills.
- Comparison of students' grades in the practical exam with –
    - the Interpersonal Pattern Analysis (IPA) of the supervisors
    - how the students experienced the nature of their relationship with their supervisors
    - the supervisors' feedback style as acquired through focus groups and interviews
    - the grades students received from their supervisors for their clinical reasoning skills in the Work Habits Report (WHR)
    - comments that the students received from their supervisors in the WHR.
- Students' general academic performance.

- Triangulation for the typical profiles of supervisors with high, medium and low performing students.
- Identification of the most effective and least effective supervisory profile for the fieldwork education of students.

Chapter 5 will end with a summary of the findings, reflections on the findings, the significance of the study and the process followed in the execution of the study, the limitations of the study and recommendations for further research.

CHAPTER 2

2. LITERATURE REVIEW

2.1 Introduction

In order to provide an adequate background for the study, the literature review focuses on the following concepts which are central to the investigation:

Clinical reasoning in occupational therapy in terms of the:

- Concept
- Content
- Process
- Teaching strategies
- Therapists' level of clinical reasoning competency

Physical fieldwork education in occupational therapy in terms of the:

- Purpose
- Expected outcomes
- Development models
- Teaching approaches
- Assessment of and feedback to the student

I**nterpersonal communication** in the context of fieldwork education in terms of the:

- General Systems Theory
- Humanistic Approach

- Interactional Pattern Analysis theory
- Fieldwork educator in the relationship
- Student in the relationship

Assessment of clinical reasoning skills in the practical exam.

2.2 Clinical reasoning

2.2.1 Introduction

Patients suffering from physical trauma or disease each face their own unique difficulties in a particular set of circumstances at a specific point in time (Addy, 2006; Mattingly & Fleming, 1994). Physical injury or acquired illness often results in occupational dysfunction which may interfere with a patient's ability to adapt to environmental demands leaving him or her dependent on others (Trombly Latham, 2008; Addy, 2006; Molineux, 2004; Cohn E. S., 2003).

Those seeking occupational therapy to ultimately improve their autonomy are in need of what Du Toit (2009) calls "original answers" emanating from sound clinical reasoning, which is fundamentally a challenging decision-making process (Kuipers & Grice, 2009; Dunbar, 2007; Rogers J. C., 2004; Neistadt & Crepeau, 1998; Robertson, 1996). Helping patients find ways and means to functional independence, i.e. all activities that they engage in during the day, depends to a large extent on a clinician's astuteness, knowledge, skills and experience during the problem-solving process (Kuipers & Grice, 2009; Liu, Chan, & Hui-Chan, 2000; Neistadt & Crepeau, 1998; Mattingly & Fleming, 1994).

There are two aspects to clinical reasoning – a content component (what therapists think about the patient's problems and how to intervene), and a thinking process connected with it (how therapists think about their patients) (Mattingly & Fleming, 1994).

In this section the concept "clinical reasoning in occupational therapy" will be examined first, followed by the content, then an overview of the thinking process connected with it, a description of how it is taught in the undergraduate programme, and finally the therapists' level of competency.

2.2.2 Clinical reasoning: The concept

Joan Rogers describes clinical reasoning as “the thought process that guides practice” in which therapists employ their clinical reasoning skills to first assess their patients’ health status, i.e. establish what are the patients’ impairments and what their strengths are, and following that (in collaboration with the patients themselves) deciding upon desirable intervention strategies (Law & Baptiste, 2002; Rogers J. C., 1983, p. 336). Based upon these decisions the quality of life of the patient can be significantly improved.

Mattingly and Fleming are of the opinion though that clinical reasoning is not merely “matching condition to therapy of choice” (scientific reasoning), but a complex practical reasoning process in which the individual needs of the patients, including their experience of their illness, are considered (Mattingly & Fleming, 1994, p. 13).

Neistadt, Wight & Mulligan (1998, p. 125) add that clinical reasoning is the thought process used by clinicians to “individualize treatment”.

Royeen et al. also define clinical reasoning in the same vein, but qualify “thought process” as a “reflective thought process” which therapists “undergo to integrate client evaluation information in order to develop and implement intervention plans” (Royeen, Mu, Barrett, & Luebben, 2001, p. 108).

Unsworth (2011) on the other hand maintains that when authors in general define clinical reasoning as “many modes of thinking that guide clinical practice” this concept is indistinct and much research would be required to explore and examine the phenomenon.

Although authors differ in their view of the concept it would seem that the notion of Rogers’ (1983), i.e. data collection about the patient’s problems and strengths, analysis and interpretation of such data, and the implementation of intervention strategies, still form the core components of the concept (Kuipers & Grice, 2009; Mendez & Neufeld, 2003).

2.2.3 Clinical reasoning: The content

Since the research on clinical reasoning in occupational therapy of Rogers and Masagatani (1982), various authors have described the way they thought about the content. Using different words they defined it as either “modes” (Unsworth, 2004; Ward, 2003; Rogers J. C., 1983), “forms” (Mattingly & Fleming, 1994), or “types” of clinical reasoning (Mendez & Neufeld, 2003; Neistadt, Wight, & Mulligan, 1998; Robertson, 1996; Strong, Gilbert, Cassidy, & Bennett, 1995; Fleming, 1991). Because these modes, types or forms of clinical reasoning were developed from two different paradigms, viz. positivistic – i.e. objective and reductionist in nature, and interpretive, which is more subjective because of the different purposes they serve in the reasoning process, the nature of each mode will have to be examined first. In this study the term “mode of clinical reasoning” will be used for both the assessment and the intervention strategies.

For the purpose of this study the following modes of clinical reasoning, described by pioneers and experts in the field and tabled by Schell and Schell (2008), will be used as a framework since these are universally employed in most of the literature and research on the subject:

- Scientific reasoning (including diagnostic and procedural reasoning)
- Interactive reasoning
- Conditional reasoning
- Narrative reasoning
- Pragmatic reasoning
- Ethical reasoning

2.2.3.1 Scientific clinical reasoning

The science of occupational therapy has a comprehensive and diversified knowledge base requiring practice skills for each condition or dysfunction. Therapists employ the scientific mode of reasoning when they apply “scientifically derived” theory

(Mattingly & Fleming, 1994, p. 317) or evidence-based practice (Tomlin & Borgetto, 2011) to assess and treat patients who suffer from physical dysfunction. This mode of reasoning, according to Radomski (2008) is particularly relevant in the physical field of occupational therapy because effective treatment strategies are based on a good understanding of anatomy, physiology, anatomical pathology and biomechanics. Therapists working in this field are often criticised however, because they rely mainly on the biomechanical frame of reference which employs a reductionist approach (McEneany, McKenna, & Summerville, 2002) rather than considering the patient as a person who suffers from a specific condition.

Scientific reasoning comprises both occupational diagnostic reasoning (Rogers & Holm, 1991) and procedural reasoning (Fleming, 1991). Each will be discussed next.

i. Diagnostic clinical reasoning

Occupational diagnosis was first described by Rogers and Masagatani (Rogers J. C., 2004; Rogers & Masagatani, 1982). They undertook a qualitative research pilot study on the diagnostic clinical reasoning of 14 clinicians' ability to identify patients' problems in "an acute physical setting" and included the formulation of intervention plans to remediate or alleviate such problems. From their study it was found that clinicians' problem statements were to a large extent influenced by the medical diagnosis of the patient. The findings also indicated that clinicians themselves used only a few cues to identify problems and that they were reluctant to articulate their own ideas.

In her Eleanor Clarke Slagle lecture Rogers (Rogers J. C., 1983) explored clinical reasoning further from an ethics, science and art point of view and elaborated on the steps involved in occupational diagnosis, viz. pre-assessment image, cue acquisition, both hypotheses generation and evaluation, cue interpretation and occupational diagnosis.

During the late 1980s Rogers and Holm published a format therapists could use to assess the occupational status of patients. Using a top–down approach they formulated four structural components in the occupational therapists' diagnostic reasoning process (Rogers & Holm, 1991). These four processes have been described in more detail by Rogers (2004) and will be expounded on next.

- **Descriptive component**

During this assessment the therapist identifies any problems a patient might have to perform various tasks and roles in their lives in order to function independently. These tasks and roles range from activities of daily living to work related ones.

- **Explanatory component**

After assessment of the patient's functional ability, the next step is deliberating upon the probable cause of the functional problems. For example, a problem in getting dressed might be caused by a limited range of motion, and by a social role dysfunction, low self-esteem and anxiety.

- **Cue component**

Cues might be the symptoms and or signs that augment the therapist's understanding of the patient's problems. Symptoms are the subjective information provided by the patient, e.g. "I find it difficult to work on the computer because once I start to work I feel pins and needles in my hand and my shoulder is painful". Signs on the other hand are the objective data collected by the therapist by means of various assessment tools such as testing the patient's range of motion.

- **Pathological component**

This component specifies the pathology which underlies the medical condition. In the above-mentioned case the medical pathology is a neck injury causing the pain (Rogers J. C., 2004).

These processes, although described separately, do not necessarily follow a specific sequence but often happen concurrently. Nevertheless it is important to assess a patient's problems by determining how the dysfunction impacts on such patient's performance, what their strengths are and how motivated they are to participate in occupation so that intervention strategies can be decided upon. Diagnostic reasoning however, does not stop once it has started but is an on-going assessment process that directs intervention continuously to ensure change and improvement. Constant appraisal of data reveals which data is necessary to grade treatment appropriately.

ii. Procedural clinical reasoning

Fleming coined the term *procedural reasoning* which refers to therapists' thought processes when they think about a specific injury or condition and decide on which principles, techniques and/or procedures they should employ to treat the patient to become more functional (Fleming, 1991). This mode of reasoning could, according to Fleming, be compared to that of the medical model in the sense that occupational therapists think about the patients' dysfunction first and then decide upon the intervention strategies which could be employed to remediate the problem afterwards (Fleming, 1991; Ward, 2003). Although the medical model and evidence-based practice are of utmost importance in order to render quality service, no treatment procedure on its own could provide for a successful outcome (McEneany, McKenna, & Summerville, 2002; Mattingly & Fleming, 1994).

2.2.3.2 Interactive reasoning

With *interactive reasoning* (Mattingly & Fleming, 1994) the approach of the therapist is client-centred with the intention of understanding the patient as a person and how he/she perceives his/her world (Hagedorn R. , 1995). In order to do so the therapist focuses on the core therapeutic skills of empathy, unconditional positive regard and congruence (Du Toit, Grobler, & Schenk, 1998). Furthermore therapists collaborate with patients, if appropriate, about their own treatment, thus fostering a feeling of control (Goodman, Hurst, & Locke, 2009). In this respect Du Toit (2009, p. 17) maintains that the clinician cannot apply treatment procedures to or do anything for the patient, but is obliged to "wait for the patient in his totality to do with her". The Nigerian Association of Occupational Therapy (World Federation of Occupational Therapists, 2003, p. 27) believes in this regard that the therapist should work with the client "towards promoting freedom from dependence on others and to attract respect and not pity".

The client-centred approach described by Fleming (1991) seems to be based on Carl Rogers' series of 19 propositions of human behaviour and his person-centred approach (Rogers C. R., 1951). Central to this approach is the notion that the therapist tries to understand how the patient or client sees him/herself. Rogers

(1951, p. 30) states in this regard that “the therapist must lay aside his preoccupation with diagnosis and his diagnostic shrewdness … must give up the temptation subtly to guide the individual … and must concentrate on one purpose only; that of providing deep understanding and acceptance of the attitudes consciously held at this moment by the client…”. Mattingly and Fleming (1994) also maintain that improvement occurs within the scope of an interpersonal relationship.

2.2.3.3 Conditional reasoning

Conditional reasoning is another mode of clinical reasoning described by Fleming. According to her the therapist uses conditional reasoning when she/he “moves beyond specific concerns about the person and the physical problems and places them in broader social and temporal contexts” so that meaningful experiences can be created for the client (Mattingly & Fleming, 1994, p. 133). She is also of the opinion that conditional reasoning requires a deep understanding of the patient in his/her totality and places the focus on continuous adaptation of intervention strategies (Mendez & Neufeld, 2003). Since conditional reasoning requires deep levels of insight it is the more experienced therapists who will employ this kind of reasoning (Unsworth, 2011; Liu, Chan, & Hui-Chan, 2000).

2.2.3.4 Narrative reasoning

In addition to the above modes of reasoning, Mattingly (1991) also proposed a fourth one she calls *narrative reasoning.* According to her this reasoning mode should enable therapists to think about the patients’ life stories. These “life stories” should then reflect the patients’ occupational roles and activities (Neistadt, 1996; Mattingly & Fleming, 1994). Mattingly (1991) concludes that *narrative reasoning* or storytelling and story creation forms the cornerstone of clinical reasoning in occupational therapy and maintains that *narrative,* rather than *scientific reasoning,* forms the basis of clinical reasoning, thus enabling therapists to think about the patients’ life stories as it is in the here-and-now as well as helping them to visualise how the client’s life might be in the future. It is upon these life stories that therapists’ practical reasoning

should ultimately be based (Strong, Gilbert, Cassidy, & Bennett, 1995; Mattingly & Fleming, 1994).

2.2.3.5 Pragmatic reasoning

Schell and Cevero added *pragmatic reasoning* as another mode of reasoning to Mattingly and Fleming's framework of clinical reasoning in occupational therapy (Schell & Cervero, 1993). According to these authors pragmatic reasoning consists of both the practice and the personal aspect of therapy. As indicated by them it only makes sense to include contextual factors that facilitate or enhance treatment as part of the clinical reasoning process. These factors from a practice point of view include hospital policy, available funding, equipment, space, treatment protocols, time schedules (Schell B. A., 2003) and the therapists' personal abilities such as their repertoire of therapeutic and interpersonal communication skills and their value systems (Schell & Cervero, 1993).

Unsworth (2004) on the other hand questions the inclusion of pragmatic reasoning as a separate mode of clinical reasoning in occupational therapy, based on the findings of her research on 13 occupational therapists' clinical reasoning applied to 13 patients from three physical rehabilitation centres. Data were collected from a focused ethnographic framework. The findings indicated that pragmatic reasoning was related to the practice context only.

2.2.3.6 Ethical reasoning

Ethical reasoning is described by Rogers (1983, p. 344) as "the search for an understanding of the patient's life rather than to make an evaluation of it". The therapist should therefore ask what ought to be done.

Through ethical reasoning the therapist proposes interventions in relation to the ethical principles of practice, as well as in terms of any medico-legal considerations (Turner, Foster, & Johnson, 2002). These ethical principles or deontology (Runes,

2001) is the systematic exposition of the moral code that describes the therapist's responsibilities and the fundamental principles of right and wrong action (axiology).

In South Africa ethical reasoning in occupational therapy is based on the Code of Ethics as laid down by OTASA (2003). The Code of Ethics consists of four principles which are in essence the following:

- Beneficence, i.e. the therapist must show concern for the well-being of clients and ensure quality of service at all times.
- Autonomy, i.e. respect for the clients' rights to make decisions and to choose freely and the therapist's right to act autonomously based on acquired knowledge and experience.
- Veracity, i.e. the therapist should act with integrity by telling the truth, giving accurate statements and keeping his/her promises.
- Justice, i.e. the therapist will not discriminate against clients and will ensure that all clients are entitled to appropriate, affordable and accessible services.

The Code of Ethics thus provides a set of principles (deontology) which are based on values (axiology) to provide guidelines for practice and for maintaining high standards of professional behaviours.

In her Eleanor Clark Slagle lecture, Rogers J.C. (1983) asserts that "the clinical reasoning process terminates in an ethical decision, rather than a scientific one, and the ethical nature of the goal of clinical reasoning projects itself over the entire sequence".

The various modes of clinical reasoning mentioned are set out in Table 2-1: List of clinical reasoning modes in occupational therapy

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Table 2-1: List of clinical reasoning modes in occupational therapy

Scientific reasoning (Rogers J. C., 1983) ➢ Occupational diagnostic reasoning (Rogers & Masagatani, 1982) ➢ Procedural reasoning (Fleming, 1991)
Narrative reasoning (Mattingly C. , 1991)
Pragmatic reasoning (Schell & Cervero, 1993) ➢ Practical context (Schell & Cevero 1993) ➢ Personal context (Schell & Cevero 1993)
Ethical reasoning (Rogers J. C., 1983)
Interactive reasoning (Fleming, 1991)
Conditional reasoning (Fleming, 1991)

2.2.4 Clinical reasoning: The process

To reason clinically different thinking processes are employed (Unsworth, 2004).

Rogers J. C. (1983) maintains that students should be taught the process of clinical reasoning by employing deductive, inductive, dialectic and ethical thinking skills.

Deductive thinking skills are drawn on predominantly when employing occupational therapy diagnostic reasoning (Rogers J. C., 1983) scientific reasoning (Rogers J. C., 1983; Rogers & Masagatani, 1982); procedural reasoning (Fleming, 1991) as well as pragmatic reasoning (Schell & Cervero, 1993). The therapist recalls information from memory, generates a series of hypotheses and applies them to a particular case.

The first study of clinical reasoning which focused on the thinking process, and was used by occupational therapists while doing assessments, was conducted by Rogers

and Masagatani in 1982. They found that the thinking processes of therapists could be systematically recorded from the moment they "receive a referral and read words such as stroke, hemiplegia, or depression" (Rogers J. C., 2004, p. 19). Reading these words would bring back memories of stored knowledge as well as previous experience of similar cases so that their thinking became "automatic but mindful" (Rogers J. C., 2004, p. 20).This thinking process is fundamentally deductive in nature.

In the field of psychology Sternberg (2002, p. 386) refers to this process as memory thinking and asserts that memory is the foundation of the thinking process since a person "cannot think critically (or any other way) about what they know if they do not know anything".

However, not all cues and symptoms expected by the therapist from her/his frame of reference will be manifested in every patient. Since each patient is a unique human being symptoms might differ. The therapist will therefore need to employ inductive thinking skills to draw conclusions about observations and findings that were made.

A third thinking skill employed by therapists in the selection of treatment interventions is described by Rogers (1983, p. 344) as *dialectic thinking*. For her "the therapist argues one treatment option against another without recourse to new clinical data".

Finally to her ethical reasoning is ultimately imperative in the problem solving process and the therapist's thinking should therefore revolve around the question about "what ought to be done?"

Another study on the process of clinical reasoning was conducted by Fleming and Mattingly between 1986 and 1990. They participated in a research project on clinical reasoning funded by the American Occupational Therapy Association and the American Occupational Therapy Foundation (Mattingly & Fleming, 1994). In this project they studied the whole therapeutic process from the moment of assessment to that of discharge, and for them the thinking process of clinical reasoning was in essence a problem-solving process.

Following on Rogers' (1983) and Mattingly and Flemings' (1994) publications on the clinical reasoning process in occupational therapy, empirical research on this subject

were conducted by numerous authors (Strong, Gilbert, Cassidy, & Bennett, 1995; Roberts, 1996; Hagedorn R. , 1996).

Many conceptual models of problem solving have been proposed in the past. These models usually give a sequence of steps that should be followed when solving problems. However, for clinical reasoning to be effective (once the problem has been defined) there should be interaction between processes such as 'memory thinking' (recalling of knowledge stored in memory and past experience), 'creative thinking' (idea generation), 'critical thinking' (evaluation of ideas) and 'practical thinking' (the right action in a given case) (Mattingly & Fleming, 1994; Sternberg R. J., 1999). Since clinical reasoning is essentially a problem-solving process it will be examined next.

When confronted with a patient suffering from a specific physical condition the therapists' natural inclination would be to solve the problem with standardised treatment intervention strategies. Various evidence based treatment methods have been developed over the years and are used to good effect in the field (Tomlin & Borgetto, 2011).

Uncomplicated problems can often be solved by an analogue approach or convergent thinking which is based on a logical mode of thought with proponents that have a single correct answer (Ochse, 1990; Weisberg, 1993; Sternberg R. J., 1999). Save for ill-defined problems where the means of solving it is not immediately apparent a more structured algorithmic approach with a set of rules could be followed.

In contrast to and because of the complex nature of clinical reasoning divergent thinking is essential for creative problem solving (Guilford, 1975) or to reorganise existing knowledge (Ochse, 1990). Furthermore Guilford (1975) believes that people who employ divergent thinking are sensitive to problems, i.e. they have the ability to recognise problems, and are fluent, innovative and flexible in their thinking. In the same vain Csikszentmihalyi stated that "new is meaningful only in reference to the old' (Csikszentmihalyi, 1996, p. 314). For therapists to do creative problem solving in the clinical reasoning thinking process, they need to rearrange and combine existing knowledge and information about occupational therapy intervention in a novel way.

For the purpose of the study the stages of problem solving, which is well explained in literature, each will be described briefly.

Stages of problem solving

i. Problem spotting, finding or definition

Identification and formulation of a problem or problem spotting is the most difficult part in the solving problem process and crucial in creative problem solving (Sternberg R. J., 1999; Robertson, 1996). In the case of occupational therapy once a patient's problems and strengths are identified from his/her assessment the intervention strategies seem to be much more exact. Rogers (1983, p. 340) states in this regard that "The output is the conclusions summarised in the occupational therapy assessment. The conversion of intake data to output conclusions is a critical feature of clinical reasoning".

ii. Preparation

This stage of the process contains elements of conceptual exploration with the combining and recombining of ideas.

iii. Incubation

In a case where the combining and recombining of ideas do not lead to an immediate solution, there could well be a stage of incubation where unconscious thinking is going on while the person is consciously engaged in some activity unrelated to the problem.

iv. Illumination

The incubation period comes unexpectedly to an end with a sudden insight or illumination. This can lead to productive and goal directed thinking.

v. Verification and evaluation

In the last stage the alternative solutions are evaluated, and the most effective chosen and tested against the aims and the implementation or action planned.

Once a possible solution is found, therapists should reflect on the process or think about their thinking (meta-cognition). Parham postulated in this regard that therapists

should enhance their clinical reasoning by becoming 'reflective therapists' (Parham, 1987).

Fondilller *et al.* (1990, p. 42) are of the opinion that therapists' clinical reasoning is to a large extent influenced by their values, hence "the clinician comes to practice with a value system that guides the initial decisions and judgments". Judged from these notions it would seem that the process of clinical reasoning is multifaceted and complex.

2.2.5 Clinical reasoning: Teaching strategies

There are two aspects to the teaching of clinical reasoning in occupational therapy - the theory of clinical reasoning and the application of the theory. For students to learn clinical reasoning effectively it should be taught throughout the curriculum by means of different teaching methods (Neistadt, Wight, & Mulligan, 1998).

These skills are taught and learned in stages during the students' first to fourth years of study at the University of Pretoria. During their first year students learn mostly about the theoretical concepts. In their second year the emphasis is mainly on scientific reasoning which comprises both occupational diagnostic reasoning or assessment and basic procedural reasoning skills or scientific intervention strategies. In the third year the application of clinical reasoning is extended with emphasis on a wider variety of conditions and areas of functioning; thus taking more modes of reasoning into account. The acquisition of this competency however, is to a large extent developed in the students' fourth year during their fieldwork education under the supervision of a registered occupational therapist (Bonello, 2001).

As indicated previously the occupational therapy process is not a memorised linear procedure but a complex and challenging on-going thinking process. Teaching clinical reasoning poses a challenge to both faculty and fieldwork educators. To develop and elucidate these skills a variety of teaching strategies are employed, e.g. paper and video cases (VanLeit, 1995), narratives or storytelling (Mattingly & Fleming, 1994) and the classroom as clinic (Neistadt, 1987) before students begin with their fieldwork education (Cohn E. S., 1989).

Each will be described briefly.

2.2.5.1 Paper cases

Undergraduate occupational therapy students initially learn about clinical reasoning by doing pencil and paper case exercises in the classroom. Paper cases emphasise the medical condition fostering predominantly scientific reasoning, occupational diagnostic reasoning and procedural reasoning (Fleming, 1991). Teaching clinical reasoning by means of paper case studies, while employing a problem-based learning approach in a small group, has the advantage that it could stimulate interaction, intellectual curiosity and discussion amongst students if facilitated effectively (VanLeit, 1995).

2.2.5.2 Video cases

Another teaching method described by Van Leit (1995), the videotape case study, offers according to her, the students the opportunity to both visualise and understand by means of the video the patient's narrative from his/her perspective. Videos have also the advantage that students can look at them repeatedly to get a clear understanding of the complexity of the case under study.

2.2.5.3 Narratives or story telling

Mattingly (1991) believes that by storytelling the patient's situation or experience of his/her dysfunction can be better understood. For her "chart talk" or medical information about the patient focus merely on the disease and hence constitutes a reductionist approach (Mendez & Neufeld, 2003). Faculty sharing patients' narratives (respecting their patients' anonymity) could foster clinical reasoning by articulating their own thinking processes during the course of treatment.

2.2.5.4 The classroom as clinic

Another teaching strategy would be to facilitate students' clinical reasoning skills by inviting physically disabled guest lecturers to role model as patients in the classroom (Neistadt, 1987). These guest lecturers are known to faculty responsible for teaching that specific module or course.

Students spend approximately two hours with the guest lecturer who would address them either as a group of 30 students or in small groups of five to 10 students. The students are expected to interact with the client in order to evaluate his/her problems and strengths. Apart from assessing the client's problems and strengths (deductive reasoning) students are expected to induce specific problems the client might have. Following the interview with the guest lecturer the students are expected to do the following;

- Submit a list of the client's problems as well as the goal and plan of treatment.
- Submit a log about their experiences and feelings of the session with the guest lecturer.
- Participate in a discussion group sharing their experiences and feelings about the session and to clarify uncertainties about the case.

In her research study on the classroom as clinic for teaching clinical reasoning Neistadt (1987) found that this method fosters a deeper understanding of clinical reasoning. She included 78 students in her study and the results from the pre- and post-testing of the students' ability to accurately analyse pre-assessment data and to formulate appropriate treatment programmes improved significantly as a result.

2.2.5.5 Fieldwork education

Fieldwork education requires a shift of focus from classroom education to where it becomes the integration of theory into practice (Allison & Turpin, 2004). For students to acquire the necessary competencies and skills to develop their professional

identity they should be afforded with adequate opportunities in fieldwork experience (Tompson & Ryan, 1996).

During their fieldwork education students are taught *in situ* on how to offer authentic occupational therapy by means of effective clinical reasoning (Cohn E. S., 2003; VanLeit, 1995).

The relevancy of fieldwork education is graphically illustrated in Figure 2-1: The Cone of Learning as revised by Bruce Hyland from work originally done by Edgar Dale (1969). The cone is based on the premise that we "tend to remember our level of involvement".

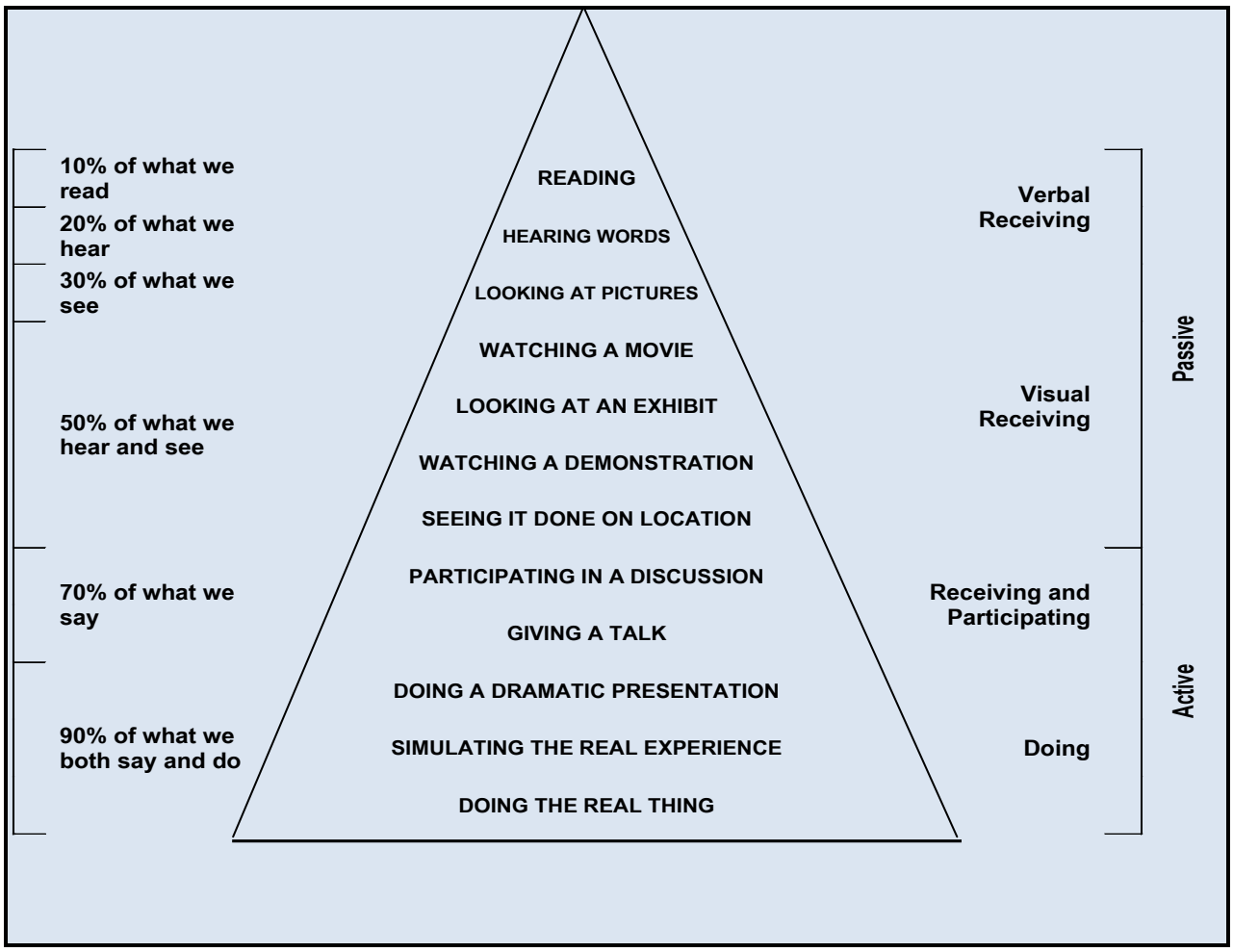

Figure 2-1: The Cone of Learning

Fieldwork education should therefore be of prime importance in teaching clinical reasoning skills as there seems to be general agreement that experiential learning or

students' active participation in learning activities (Bradly-Klug & Shapiro, 2003) has a positive impact on their memory retention and memory thinking (Sternberg R. J., 2002).

2.2.6 Therapists' level of clinical reasoning competency

The transition process from classroom to fieldwork is experienced by both students and supervisors, especially novice supervisors, as quite challenging.

As observed in research studies it seems that novice therapists employ mainly procedural reasoning skills. In a study conducted by Liu, Chan and Hui-Chan (2000) on 12 occupational therapists, six from the junior group and six from the senior group working with in-patient rehabilitation stroke patients, it was found that 60% of the junior therapists use procedural reasoning to think about patients in terms of their disease, procedures, techniques and activities in order to maximise the functioning of those patients.

Fleming (1991) likewise found that novice therapists tend to generate fewer hypotheses and tend to view the patient only in terms of his/her medical condition and relying on recognised methods of treatment. The findings of Kuipers and Grice (2009) of 21 occupational therapists (13 novice and eight experts) indicated that novice therapists rely more on external system aids or grids to support their clinical reasoning. According to Rogers the novice clinician relies on set therapeutic principles to retrieve out of memory (Rogers J. C., 1983). Robertson in addition stated that the novice may not recognise the salient features of a problem due to inexperience. For her the novice therapist perceives the patients' problems as straightforward for which straightforward methods are appropriate (Robertson, 1996, p. 181). Dutton is of the opinion that a novice therapist is "characterised by the rigid application of rules and principles learned in school" (Dutton, 1995, p. 8).

Various studies found that expert clinicians used mostly conditional reasoning. According to Lui, Chan and Hui-Chan (2000) expert therapists (73.3%) used mostly conditional reasoning in occupational therapy.

Robertson in her research study with the aim of identifying educational strategies that could be employed to assist students in developing their clinical reasoning skills found that clinicians have a better integrated understanding of patients' problems than students and that clinicians will therefore be more client-centred than students (Robertson, 1996). The data was collected by means of an interview (with predetermined questions from 67 subjects) of 14 second-year students, 31 final year students and 22 clinicians.

Expert therapists seem to be able to adapt their approach and intervention strategies according to the patient's needs rather than focusing on preconceived treatment plans (Neistadt, 1987). They tend to make use of both propositional reasoning (hypothesis testing) and heuristic reasoning in trying to identify the cause of the patient's problems or to generate ideas for the selection of therapeutic activities (Fleming, 1991). Fleming maintains that expert clinicians view their patients more holistically by taking various factors into account, and gives the following example "this is a person who has to face a lot of problems and I have to figure out the best way for me to help this patient figure out what he or she wants to work on and how". (Fleming, 1991, p. 991).

"The expert creates memory structures by classifying data according to how they are applied in practice" (Rogers J. C., 1983, p. 353) thus it can be assumed that experienced clinicians have a schemata stored in long-term memory.

In conclusion it can be stated that the time taken for the problem solving process differs noticeably between novice and expert therapist.

2.3 Physical fieldwork education

2.3.1 Introduction

Fieldwork education requires a shift of focus away from classroom education to where it becomes the integration of theory into practice (Allison & Turpin, 2004). It therefore forms an integral part of the development of the students' professional competency and clinical reasoning in the physical field of occupational therapy.

For students to acquire the necessary competencies and skills, they should be afforded with adequate opportunities for fieldwork experience (James & Prigg, 2004).

The supervision of occupational students during their physical fieldwork education at the University of Pretoria takes place either in a hospital for the treatment of acute cases or in a rehabilitation setting. Students are educated to treat patients suffering from physical dysfunctions, such as spinal cord injuries, upper and lower limb injuries, rheumatoid arthritis, osteo-arthrosis, burns as well as neurologic conditions such as traumatic brain injuries (TBI), cerebral vascular incidences (CVI), Guillain-Barré syndrome and multiple sclerosis and HIV/AIDS.

A remedial or a rehabilitation programme or both are employed by occupational therapists in the physical field (where students are educated) and will of necessity implement clinical reasoning to guide assessment and intervention.

Within these settings or contexts both the supervisor and the student communicate with each other and since effective communication is dependent on the creation of an adequate context for such communication according to Vorster (2011, pp. 86-87), the context and what is being communicated "determine the meaning of all communication" ultimately.

To turn to fieldwork education in occupational therapy the next step would be to examine its purpose.

2.3.2 The purpose of fieldwork education

In the occupational therapy undergraduate programme the purpose is to train competent and reflective entry level therapists (Fortune, Farnworth, & McKinstry, 2006) who are able to adapt to and master challenges in their field of practice (Richard, 2008; Kirke, Layton, & Sim, 2007; Fidler, 1996). As a result the development of competency requires higher education in both the theory and the application of such theory in the clinical field (Kasar & Muscari, 1999). Facilitation of a student's professional development is therefore not limited to the theoretical realm, but involves various teaching platforms of which one is supervised fieldwork education (Bonello, 2001; Neistadt, 1996; Cohn, 1989) in order to gain the necessary expertise.

Other health professionals likewise value a supervised fieldwork experience (Neville & French, 1991). Wagner, Keane, McLeod and Bishop (2008, p. 11) in discussing the need for clinical supervision postulate that "clinical supervision is intended to, and does …. have benefits in quality and safety of care, together with individual practitioner and organisational benefits". Yalom, for example, states that supervision "is a *sine qua non* in the education of the … therapist" (Yalom, 2005, p. 548) and added that the complexity and uniqueness of each therapy situation requires a creative approach that consists of theoretical knowledge, practical skills as well as the supervisors' attitudes and values. As a result the clinical supervisor should not impose externally contrived instructions about clinical reasoning but instead should facilitate a deeper understanding of the entire process during the student's fieldwork. In the same vein Shank and Weis believe that clinical experience is more essential to professional value development than the classroom, and professional identity clearly solidified in the clinic setting (Shank & Weis, 2001).This notion is not new as it was already put forward by Plato who postulated that "the 'eye of the soul' is not, as some 'professors of education' seem to think, a blind eye into which knowledge can be put; its power of vision can neither be originally produced by education, nor entirely destroyed by the want of it; it can only be 'turned to the light' for which it has an intrinsic capacity' (Nettleship, 1935, p. 7).

Since Plato's theory of education in his *Republic* several authors deliberated upon effective teaching methods and in attempting this constructed a plethora of strategies.

At the University of Pretoria the purpose of physical fieldwork education is to integrate students' theoretical knowledge and practical skills in different clinical settings. As stated in the ART 401 Study Guide (Graham, 2007) the purpose is to promote -

- clinical reasoning
- planning and preparing for occupational therapy assessment and intervention strategies
- implementing occupational therapy assessment and intervention strategies
- developing of professional behaviour.

Physical fieldwork education is a graded process from the students' second to their fourth or final year of study. The assessment of final year students' during their practical exam in the physical field will be discussed in 2.5.

In conclusion, the central purpose of physical fieldwork education is to focus on the occupational therapy students' clinical learning experiences. This entails the development of the students' professional knowledge, skills, attitudes and values expressed in professional behaviours during their fieldwork education (Björklund & Svensson, 2006; Kasar & Muscari, 1999; Fidler, 1996).

2.3.3 Expected outcomes of physical fieldwork education

The World Federation of Occupational Therapists' (WFOT) minimum standards for the education of occupational therapists were revised and approved in 2002.

This requires from students to practice at least 1000 hours to meet the minimum standards for education and states that "graduates from an occupational therapy educational program are expected to have substantial knowledge, skill and attitudes within the following five areas:

- The person-occupation-environment relationship and the relationship of occupation to health and welfare;
- Therapeutic and professional relationships;
- An occupational therapy process;
- Professional reasoning and behaviour; and
- The context of professional practice." WFOT (2002).

The Professional Board for Occupational Therapy, Medical Orthotics / Prosthetics and Arts Therapy of the Health Processions Council of South Africa (HPCSA) likewise requires of occupational therapy students to do 1,000 fieldwork hours.

In order to qualify for the registration with the South African Qualification Authority (SAQA) there are 11 Exit Level Outcomes as stated by the HPCSA. One of these Exit Level Outcomes is the following:

"Learning Outcome: [The student must] Demonstrate competence in adapting the occupational therapy process for individuals, groups and communities using clinical reasoning and critical thinking in order to deliver services to persons of all ages who are at risk of or are occupationally dysfunctional" HPCSA (2006).

At the University of Pretoria the Occupational Therapy 401 (ART 401) module details the above-mentioned professional behaviours in the following manner (Graham, 2007):

"On completion of the ART 401 the student must be able to -

- carry out effective assessment and treatment in the physical field
- apply effective management strategies

- maintain professional relationships".

This module addresses the following critical cross-field outcomes (Graham, 2007) -

- "Identify and solve problems using critical and creative thinking: planning and executing appropriate treatment programmes for a variety of patients.
- Work effectively in a team using critical and creative thinking: professional interacting with clinical team in OT departments as well as multidisciplinary teams involved with assigned clients; contribute according to OT role in teams.
- Organise and manage oneself and one's activities: gather, evaluate and integrate learning material to develop an overview of treatment in the physical field; personal time management in the clinical field.
- Communicate effectively: professional communication with patients and team members; oral and written referrals and reports.
- Demonstrate the world as a set of interrelated systems: planning and implementation of appropriate, holistic, sustainable treatment programmes; contribute to comprehensive rehabilitation programmes in the fieldwork setting.
- Be culturally and aesthetically sensitive across a range of social contexts: Plan and implement age, gender and culture appropriate treatment delivered in a culturally sensitive manner; communicate with team members in a culturally sensitive manner."

In accordance with the ART 401 study guide students must complete at least one six week period of physical fieldwork in a clinical setting for patients with physical dysfunction as timetabled by the University of Pretoria's Department of Occupational Therapy.

Students' clinical reasoning skills are assessed during the Mid-Term (M-T) and End of Term (EoT). The marking rubric (see Appendix C) gives a clear guide as to how grades should be allocated to students' performances.

2.3.4 Development models in fieldwork education

Professional behaviours mature through a natural developmental process that requires careful nurturing on the part of educators, student clinical supervisors and clinicians themselves (Richard, 2008). A number of development models were proposed by Health Care Professionals to monitor and evaluate students' progress during their fieldwork education. Underlying these models is the premise that any growth process tends to follow a relatively predictable pattern.

In the field of psychology Hogan proposed a Development Model which depicts six stages of development for a student or supervisee (Hogan, 1964):

- Novice stage
- Transition to intermediate stage
- Intermediate stage
- Transition to advanced stage
- Advanced stage
- Professional stage

Dunbar-Krige and Fritz (2006) suggest a development model in four stages:

- The novice
- The apprentice
- The journey person
- The master craftsman

In occupational therapy Slater and Cohn (1991) presented a model describing therapists moving from novice to expert therapists. They used clinical reasoning modes to indicate the various stages as the following:

- Novice
- Advanced beginner

- Competent
- Proficient
- Expert

These models all chart the general development of the individual rather than addressing the student's transition in terms of occupational functioning.

Loganbill, Hardy and Delworth (1982), in the field of counselling psychology, put a very comprehensive model of counsellor development forward consisting of three stages:

- Stagnation
- Confusion
- Integration

They also identify eight supervisory issues that can be present during each stage which resulted in it being a complex model to implement. It is important to note however, that they describe these stages as cyclical and not necessarily linear (Bernard & Goodyear, 2004).

Schkade in 1991 presented a model, the Occupational Adaptation Model of Professional Development (OAMPD), based on the occupational adaptation frame of reference as described by Schultz and Schkade in 1992. This model viewed student transition in the context of occupational functioning and included psychosocial, cognitive and sensorimotor components (Garrett & Schkade, 1995, p. 120). The OAMPD proposes that students have three classes of adaptive behaviours available for use:

- Primitive or hyper-stabilised
- Transitional or hyper-mobilised
- Mature, exhibiting a blend of both stability and mobility

The general behaviour that could be expected in each of the above stages are described by Garrett and Schkade (1995) as follows:

- "When the student perceives task demands as too difficult or too unfamiliar, **primitive behaviours** emerge as the student attempts to stabilise an ego threatened by the perception of impending failure. The student may demonstrate frozen posture, attempts to avoid or escape, denial of requisite knowledge, and other indications of anxiety-induced immobility, may emerge".

  From this description it would seem that students who experience clinical reasoning as too difficult or unfamiliar may attempt to avoid the reasoning process leaving them immobilised.

- If the student manages to move on, she "may then exhibit **transitional behaviours** that involve high levels of sensorimotor activity that appear to be random. Transitional behaviours stem from the perception of activity as goal. They reflect the student's awareness that some sort of action is expected. But without clear goal direction, a student may attend to irrelevant stimuli and fail to attend to relevant stimuli. These behaviours show little evidence of goal direction or purpose".

  The students who become hypermobilised may divulge several ideas which appear to be random however, and even though they try their utmost to perform, the outcomes are desultory and their clinical reasoning ineffective.

- "As the student begins to understand relationships between theory, goal, and activity, the immobilising anxiety about failure and the random activity focussed on preventing failure come under the student's control. The **mature behaviours** are characterised by a blending of stability, which is over-expressed in primitive behaviours, and mobility, which is over-expressed in transitional behaviours. Thus, the movement, thought, and interpersonal activity that the student demonstrates become more modulated and goal directed".

  The students who exhibit mature behaviours are mobilised and able to adapt successfully to challenges, show insight and can justify their actions based on sound understanding of clinical reasoning (Taylor, 2001).

Examples of specific student behaviours characterising each stage will be given in the section on interpersonal communication in the context of fieldwork education.

The validity of this model for student's development was tested and it was found to facilitate an understanding of students' development during their transition from classroom to practice setting (Garrett & Schkade, 1995).

For the purpose of this study the focus will be on the model proposed by Garrett and Schkade which are in line with the process of graded guidance advocated by the University of Pretoria.

2.3.5 Teaching approaches in fieldwork education

The importance of the supervisor's role as a teacher in facilitating understanding of clinical reasoning and the effect it has on the students' motivation cannot be over-emphasised, neither can the support in terms of the supervisor's words of encouragement and the degree to which the students experience success in their own eyes as well in those of the supervisor.

The way supervisors teach students is often a reflection of their own style of learning (Sternberg R. J., 2002). Those who prefer a didactic style would predominantly present and expect material to be learned (memory thinking). They may also prefer students to implement pre-defined treatment procedures. This teaching style allows only limited interaction between student and supervisor.

Then there are supervisors who expect students to be autonomous and creative, who are often open to new ideas and who enter into dialogue with their students.

There are also supervisors who may have a tendency to present material in evaluative terms, preferring their students to be critical and to reflect on their own work (Sternberg R. J., 2002).

Teaching and learning styles that differ so markedly must of necessity have different impacts, especially on the student's ability to master clinical reasoning. A further complicating factor is that in many instances, supervisors in occupational therapy have little or no formal education on how to handle the intensive interpersonally

focused one-on-one relationship with students in order to facilitate their competencies in the field, and may therefore experience supervision as an uncomfortable and difficult task (Sweeney, Webley, & Treacher, 2001; Devito, 1988).

Supervisors have at their disposal a variety of ways of teaching students. In this process the message the supervisor wants to communicate consists of both content and the way in which the content is conveyed, which Watzlawick refer to as the relationship aspect (Watzlawick, Bavelas, & Jackson, 1967).

Information should be presented in a way that the student can grasp and should be concurrent with his/her stage or level of development (Loganbill, Hardy, & Delworth, 1982).

The process (the how) of transmitting the information has a vast impact on the student. Rogers (1951) argued that if clients learn best by a client-centred approach the same should apply to the education of students. Allowing time for students to express their thoughts and feelings necessitates supervisors having to forfeit something else. Teaching and addressing students' needs is therefore time consuming, requiring supervisors to set aside something else they wanted to do in that time. However in doing so, the supervisors convey to students that they are important and that their professional development does matter.

The supervisor should facilitate the learning process by modelling appropriate behaviour and creating an environment conducive to learning so that optimal learning can take place.

Although supervisors are requested to facilitate reflective thinking, some didactic instruction proves to be useful in particular where complex material is taught.

Didactic instruction can be useful when a student has to perform a specific procedure on specific cases, then some form of instruction is usually necessary, as in the case of splinting. Furthermore much of what supervisors are teaching is done to assist students to function within new parameters of experience. Students must often be able to learn complex material which if it is presented in a structured logical manner could enhance their understanding of it.

Before the acquisition of clinical reasoning skills the student must be familiar with the nature thereof, i.e. what it entails. It is therefore the task of the supervisor to equip the student with the necessary knowledge and skills. Barr (1987) is of the opinion that supervisors must be made aware that they should teach students in four main stages. This is set out below in terms of responsibility for both supervisor and student:

STAGE 1

i. Discussion of plan

The supervisor should first explain to the student what she (the supervisor) planned for a patient. At this stage the supervisor should articulate her own clinical reasoning process.

ii. Demonstration

Following this initial explanation the supervisor should demonstrate the patient's treatment to the student. With a hands-on demonstration the student has the opportunity to observe (Kirke, Layton, & Sim, 2007) and to form a cognitive image of how an assessment or intervention procedure is performed. According to Bandura (Hjelle & Ziegler, 1981) this coded information could serve as a guide for a student to assess or treat a patient on subsequent occasions.

iii. Evaluation and reflection

On completion of the demonstration the supervisor should, away from the patient, evaluate the outcome of the assessment or intervention procedure. Evaluation of and reflection on outcomes is of prime importance as it directs future aims and objectives set for the patient. Supervisors who reflect on their practice "nurture their clinical reasoning skills ..." (Unsworth, 2011, p. 218) and hence enhance their level of competency.

iv. Modification of treatment

Upon reflection the supervisor should apply clinical reasoning skills, and more specifically conditional reasoning, in order to direct the patient's future treatment.

STAGE 2

i. Discussion of plan

Both the supervisor and student plan a patient's assessment or treatment session by means of clinical reasoning. A problem-based approach is followed so that the student's memory, creative, critical and practical reasoning skills can be enhanced. This would also give the student the opportunity "to learn, not just to be told" (Kirke, Layton, & Sim, 2007, p. S17).

ii. Practical application of plan

Following on the planning the supervisor should let the student practice the assessment or procedure while still observing it. This would provide the student with a safety net because the supervisor will be able to intervene should it be necessary.

iii. Evaluation and reflection

At this stage the supervisor should facilitate the student's clinical reasoning in evaluation of and reflection on his/her practice.

iv. Modification of treatment

Upon reflection the supervisor should foster the student's clinical reasoning skills and more specifically conditional reasoning in order to direct the patient's treatment.

STAGE 3

i. Planning

The student should plan assessment and treatment based on his/her clinical reasoning skills under the supervision of the fieldwork educator.

ii. Practical application of plan

Following on the planning the supervisor should allow the student to practice the assessment or procedure while still observing it. This would once more provide the student with a safety net because the supervisor will be able to intervene should it be necessary.

iii. Evaluation, reflection and feedback

The student should now evaluate and reflect on his/her performance independently. At this stage it is important that students receive immediate, accurate and constructive feedback so that they can know how to change (Watzlawick, Bavelas, & Jackson, 1967; Gravett & Geyser, 2004).

iv. Modification of treatment

Upon reflection the supervisor should foster the student's clinical reasoning skills and more specifically conditional reasoning in order to direct the patient's treatment.

STAGE 4

i. Discussion of plan

The student should plan assessment and treatment based on his/her clinical reasoning skills independently.

ii. Practical application of plan

Following on the planning the student should implement the assessment or procedure he/she planned independently.

iii. Evaluation and reflection

At this point the student should be able to evaluate and reflect independently on his/her own assessment, plan of treatment and the implementation of the plan.

iv. Modification of treatment

Here also the student should be able to modify his/her treatment independently.

In conclusion, facilitating independent and effective clinical reasoning among students requires progress sequentially through the various stages of their fieldwork education – a process that demands careful nurturing on the part of clinical supervisors.

2.3.6 Assessment of and feedback to the student in fieldwork education

The development of the students' professional expertise is to a large extent dependent on the feedback given to them by the supervisor. Bernard and Goodyear (2004, p. 30) state in this regard that "giving feedback is a central activity of clinical supervision and the core of evaluation". Should no feedback be given the student is left to his/her own devices resulting in learning, if any, taking place through trial and error (Watzlawick, Bavelas, & Jackson, 1967).

Feedback could be either confirmatory and/or corrective in nature. Through confirmatory feedback the supervisor informs the students if they are still on course and through corrective feedback, if they have wandered off the track and what they need to do to get back. Bernard and Goodyear (2004, p. 5) believe that "unless practice is accompanied by the systematic feedback and reflection that supervision provides, supervisees may gain no more than the illusion that they are developing professional expertise".

Feedback is a common phenomenon and various disciplines often share the same principles. For the purpose of this study, general guidelines for giving feedback while supervising students have been compiled and will be set out next.

- Feedback should be given timely (Gravett & Geyser, 2004). The supervisor should be able to read the situation, i.e. the student's readiness to make use of feedback. Giving an opinion if the student is not ready is likely to arouse denial as well as resistance or resentment towards the supervisor (Brammer, 1973).

- Feedback should not be a personal attack but instead describe a student's specific behaviour before the supervisor gives his/her feeling about it (Chur-Hansen & McLean, 2006). "Often it is difficult to determine when feedback is a projection of your own personal prejudices and problems" (Brammer, 1973, p. 98). The supervisor should therefore present feedback in an objective and constructive way avoiding any statements that question the overall self-esteem of the student (Gravett & Geyser, 2004; Buchanan, Moore, & Van Niekerk, 1998).

- Feedback should balance the good and the not so good (Chur-Hansen & McLean, 2006). It "should be honest but also motivating" (Gravett & Geyser, 2004, p. 109).

- Feedback should be given bit by bit so that the student can have time to assimilate the complete feedback (Egan, 2002). Too many comments all at once may overwhelm him/her and create confusion and possible resentment. "Feedback given in [a] cumulative manner serves more as a ventilation of hostility for the giver, and less as a helpful gesture" (Brammer, 1973, p. 99). "Feedback should be realistic around issues that the learner can grasp and act upon" (Gravett & Geyser, 2004, p. 109).

- Feedback should be detailed and descriptive (Gravett & Geyser, 2004). Students should be engaged in dialogue and should be encouraged to comment on feedback (Egan, 2002; Sweeney, Webley, & Treacher, 2001a).

During their fieldwork education students of the University of Pretoria receive feedback on their professional behaviours (including their clinical reasoning ability) from their supervisors during both the mid-term and end of term. Using a formalised Work Habits Report (Appendix B) as well as a marking rubric (Appendix C), supervisors are expected to give formative and summative feedback to each student.

i. Formative assessment

Formative assessment and feedback has as its focus improving the students' learning process rather than to pass or to fail them. Its purpose is to assist students on a regular basis to identify their strengths and areas that need to be developed in order to become a competent therapist.

Most students value competent supervisors who display clinical competency and who articulate their clinical reasoning thought processes.

Competent supervisors undertake the following tasks:

- Align expectations – students would be more inclined to learn when they have the expectancy that the fieldwork education will equip them to become competent therapists (Morse, 1998).
- Shape norms as a model-setting participant by being a model of effective professional behaviours, including clinical reasoning (demonstration of assessment and treatment).
- Give feedback on students' performance by appreciating their strengths (confirmative feedback) as well as their problem areas (corrective feedback) thus helping them to learn from him/her.

Various literature studies are available on how to give occupational therapy students feedback during their fieldwork education (Chur-Hansen & McLean, 2006). In the context of this study the guidelines as set out below are deemed relevant:

- Feedback should be given soon after completion of the task.
- A positive-negative-positive approach to feedback should be used, i.e. start with one of the student's strengths, identify the aspects which need to be worked on and close with a motivational statement.

- Give advice on how to improve.
- Offer help to overcome obstacles.
- Request and respond to feedback from the student about the feedback that was given (Sweeney, Webley, & Treacher, 2001a).

ii. Summative assessment

With summative assessment students' performances are judged by the allocation of grades to indicate their level of competency. Every institution has its own measuring scale to assess students' competency. At the University of Pretoria a marking rubric (Appendix C) is used to assess the students' performance. Students are assessed on their level in terms of the following:

- Theoretical knowledge
- Skill
- Insight
- Interaction (client-centeredness)

2.4 Interpersonal communication in the context of fieldwork education

2.4.1 Introduction

Various authors deliberated on the importance of the supervisory relationship in fieldwork education. As early as 1967 Truax and Carkhuff stated that the supervisor should actively shape the student's behaviour as far as effective practices in a free and open relationship are concerned (Truax & Carkhuff, 1967). Morse believed that the supervisor's role was to bring growth to supervisees in areas beyond the training of clinical skills, viz. to instil hope, to inspire and to nurture (Morse, 1998). Rogers made a strong case for therapy to be equated with education and that the aim of the therapist, which is to release the patient's capacity to deal constructively with his life

situation, can be applied equally to the supervisor / student situation (Rogers C. R., 1951). In 2004 Bernard and Goodyear stated a positive and productive relationship is critical for successful supervision (Bernard & Goodyear, 2004).

In a physiotherapy related research study on *Clinical supervision as an interaction between the clinical educator and the student* (Laitinen-Väänänen, Talvitie, & Luukka, 2007, p. 102) it was found that "The dominant role of the clinical educator in constructing and leading the learning session – limit students' opportunities to enhance their critical thinking, reflective practice and self-directedness".

In view of these statements it would seem that the nature of the supervisory relationship is a major determinant in the success of fieldwork education.

Since interaction is an integral part of the teaching process and effective learning relies heavily on the dialogue between those involved because "relationship processes permeate all of supervision" (Bernard & Goodyear, 2004, p. 136), interpersonal communication will have to be examined from a theoretical framework first.

In the interaction between supervisor and student, the behaviour of the supervisor impacts on the student and the response elicited from the student will impact in turn on the supervisor with relatively constant patterns of interaction between them coming into being (Vorster, 2003). The supervisor and student ... "can be seen as comprising an interactional system, characterised, *mutatis mutandis,* by many of the properties of general systems" (Watzlawick, Bavelas, & Jackson, 1967). Vorster, in a summary of the General Systems Theory (GST) within the context of psychotherapy, states that the emphasis here is on the inter-psychic, or the relationship between individuals, rather than the intra-psychic or inside of the individual (Vorster, 2011). For the purpose of this study the GST will now be examined only briefly as an exhaustive purview is beyond the scope of this thesis.

2.4.2 The General Systems Theory

Fundamental but interrelated concepts underlying the General Systems Theory (GST) and how they apply in the supervisory environment include among others the following (Vorster, 2011):

- Definition of a system – The elements standing in interaction with each other in this case include as objects the supervisor and student, attributes comprising the supervisors' care about her patients and her general ability, and the students' willingness to learn and respect for the supervisor,and how they communicate with each other.

- Circular causality – The individuals and events should be viewed in the context of mutual interaction and influencing, or how each element interacts and influences the other. The supervisor, by demonstrating and correcting the student's behaviour in the treatment of clients cause changes in that behaviour that in turn would modify her behaviour towards the student.

- Feedback – Feedback from the participants could be perceived as positive if it promotes both stability and change in the system. Negative feedback on the other hand has the result that the status quo and stability is being maintained. It should be noted that positive or negative in this sense do not refer to the tone or manner in which feedback is delivered but to whether it initiates change or not. In the supervisor/student relationship positive feedback from the supervisor would thus play a beneficial role in the development of the student.

- Morphostasis and morphogenesis – Morphostasis is a system's tendency towards stability and dynamic equilibrium; in morphogenesis the system adapts through enhancing behaviour that allows for growth, creativity, innovation and change without threatening its stability. These two should be in balance for a well-functioning system by allowing for appropriate and in-context change while maintaining stability. If the student is confronted with a laissez-faire approach and being left to her own devices, the outcome could be chaotic and the relationship classified as dysfunctional. If, at the other extreme, she is strictly controlled and not allowed to show any initiative there

will be stability without any growth and the system can again be described as dysfunctional. However, if she is allowed to grow and develop within clear boundaries the relationship in the system can be construed as morphogenic.

- Open and closed systems – The supervisor and student function in a fairly open system as there are normally a number of supervisors and students at any given hospital while faculty also gives input to the process at regular intervals.

- Equifinality and equipotentiality – Equifinality is described as the tendency towards a characteristic final state while equipotentiality occurs when the same cause produces different results. As the supervisor and student tend to develop habitual ways of communicating with each other these can be seen as creating redundant patterns of interaction that can be perpetuated and as such result in the characteristic end state referred to by the term equifinality.

- Rules, boundaries and supra-systems – Both supervisor and student work as part of other, larger systems. The supervisor works in the context of the specific hospital and the student is subjected to the culture and learning of the university environment. Both are also subjected to clear rules within the boundaries of the specific sub-system although these boundaries are relatively permeable.

- Communication – Communication between supervisor and student is both verbal and non-verbal and neither cannot not behave or communicate. However, there are a number of factors that will determine the efficiency with which the supervisor as sender gets her message across, such as tone of voice, volume, tempo of speech, clarity of expression as well as non-verbal or body language. It is important also to understand that behaviour, especially in respect of the supervisor in the context of the study, represents the personal truth of the sender.

- Process – The patterns in the relationship between supervisor and student developing over time can be seen as part of a process rather than a structural element.

- Context – It is important for both supervisor and student to see each other's behaviour in the right context or a significant gap could occur in their communication. Criticism from the supervisor could easily be construed by the student as being directed at her as a person rather than an honest attempt to optimise her treatment of a client. In respect of the study it is also important to understand the supervisor's behaviour in context

- Defining the relationship – By its very nature, the relationship between supervisor and student cannot, and should not be parallel or equal (Bernard & Goodyear, 2004) as it is not a relationship among equals. If the relationship tends to be parallel, the learning potential for the student will be jeopardised. It rather tends to be a complementary relationship where both supervisor and student agree on the relative difference in status between them (Haley, 1990). The supervisor facilitates solving of problems by the student, she guides and the student practices. It is a collaborative and productive relationship with constructive interaction "... one teaches and the other learns" (Haley, 1990, p. 11). The relationship could also be symmetrical however. If so the relationship would be competitive with both supervisor and student manoeuvring for control.

The GST, as its name implies, provides a model for understanding how seemingly unrelated events, both in the physical and psychology fields, can be seen as interrelated parts of a larger whole (Vorster, 2011). However, this is not sufficient to view the behaviour of the supervisors and students in totality without the integration of a psychotherapy perspective. The humanistic approach is therefore considered a suitable approach.

2.4.3 The Humanistic Approach

The humanistic approach, which developed after the psychoanalytic and behavioural approaches, places the emphasis on the human as a whole. In this approach people are seen as inherently having the ability as well as the tendency to self-actualise unless there are obstacles in the environment that prevent them from doing so. The student's ability will thus advance during practical training if the environment is

conducive to learning. How this environment is influenced or determined through the behaviour of the supervisor is intrinsically the subject of this study.

Although the humanistic approach can broadly be seen as encompassing Existential, Gestalt and Person-Centred Therapy, the focus of the study will be on the latter which was pioneered by Carl Rogers. He recommended that the therapist (or supervisor in this case) should have certain attitudes that are characteristics of person-centred therapy and elaborated further that the therapeutic climate as a critical variable to effect change could be improved by the incorporation of specific conditions in therapy (Rogers C. R., 1951). Vorster summarises the following specific conditions identified by Rogers that would facilitate a client's growth and actualisation:

- Congruency – the degree in which the therapist is genuine and transparent to the client.
- Unconditional Positive Regard and Acceptance – the extent in which the therapist accepts without conditions or judgement the client's feelings, attitudes and behaviour.
- Accurate Empathetic Understanding – the degree in which the therapist can sensitively and actively listen to the client and being able to sense accurately the feelings and personal meanings that the client is experiencing and communicating this understanding to the client (Vorster, 2011).

2.4.4 Interactional Pattern Analysis Theory and Interpersonal Variables

The interrelated concepts underlying the GST and the fundamental conditions expounded in Rogers' Client-Centred approach as well as other variables deemed clinically relevant were included in Interactional Pattern Analysis theory (Vorster, 2011).

The 16 interpersonal variables of the Interactional Pattern Analysis theory (Vorster, 2011) were empirically investigated (Van den Berg, 2008) and found to be valid and reliable. Each will now be discussed in the context of the study:

i. Context

The context within which the communication between supervisors and students takes place would generally be the same for all participants in the study, i.e. treating patients suffering from physical dysfunction in a hospital setting.

ii. Definition of the Relationship

As described above under the GST, the relationship between supervisor and student is expected to be predominantly defined as complementary and in practice it would manifest as follows:

- The supervisor leads and the student follows.
- The supervisor teaches (demonstrates, observes student's practice, gives feedback) and the student learns from him/her.
- The supervisor offers criticism and the student accepts it.
- The supervisor gives advice and the student follows it.

In some instances the student will refuse to accept the definition as complementary and in doing so manoeuvre towards a symmetrical relationship, which places the relationship in question (Haley, 1990).

It is also possible that the relationship being defined as parallel or as equals (Vorster, 2011).

iii. Clarity of self-presentation

In the context of the study this would refer to the ability of the supervisor to set clear expectations and to give unambiguous feedback on the student's performance.

iv. Emotional distance

This refers to the emotional distance prevalent between supervisor and student, especially as exercised by the supervisor and experienced by the student.

v. Congruence

Congruence could be whether the verbal and non-verbal communication of the supervisor complements each other, and could also refer to consistency in her behaviour towards the student.

vi. Empathy

Empathy is the principle route to understanding a student and enablilng him/her to feel understood. Supervisors who show empathy make an active effort to put themselves in the student's internal frame of reference without losing their own objectivity (Rogers C. R., 1951).

vii. Unconditional positive regard

When supervisors offer unconditional positive regard it means that they have a concern for the student's welfare and have "respect for his/her individuality and worth as a person" (Brammer, 1973, p. 33). Students would therefore be accepted in a non-judgmental way.

viii. Potential for eliciting hostility/acceptance

Outright hostility from the supervisor is likely to elicit feelings of rejection in the student generating a poor self-image and lowered levels of confidence, while a friendly, caring attitude signifying acceptance would lead to a sense of self-worth and confidence and thus growth (Vorster, 2011).

ix. Confirmation

The ability of the supervisor to confirm the student as an individual in her own right and not make her feel inadequate or worthless.

x. Expression of needs

This refers to the supervisor's ability to express herself clearly when teaching the student.

If the student does not really understand what is expected of her, any attempt by the supervisor to correct her could easily be construed as undue criticism resulting in

defensiveness and self-justification. A blaming or accusatory style exhibited by the supervisor will have the same end result.

xi. Linear/Circular approach

In a linear approach the supervisor would tend to see her communication with the student as a non-sided phenomenon and not as an interactive or circular process, possibly believing that the student does not really have something of value to contribute. In a circular approach however, the supervisor will be aware of the impact his/her behaviour has on the student.

xii. Rigidity/Flexibility

The supervisor is expected to exhibit appropriate flexibility in dealing with a student. However, it should be borne in mind that the supervisor is also acting in the context of treating real clients where the consequences of a mishap by the student could be serious.

xiii. Meta-Communication

If the participants are able to communicate about communication there is a good chance of maintaining a harmonious relationship.

xiv. Problem solving skills

The competent supervisor is expected to have more than just adequate problem solving skills as this forms an intrinsic part of her ability to do clinical reasoning, which is important for the experiential learning of the student.

xv. Control

In any interchange between two people they must deal with two aspects, viz. what kind of behaviour is to take place between them and how that behaviour is to be qualified (Haley, 1990). In the context of the supervisory relationship the supervisor positions him/herself within the relationship with the student. When either the student or supervisor punctuates him/herself as a victim of control in the relationship he/she shows a lack of goal directed behaviour (Vorster, 2003).

xvi. Traumatic incident(s)

"A once-off experience may so impact on a (student) that this individual, who may have been coping quite adequately in managing her life up to this point, may become totally incapacitated" (Vorster, 2003, p. 94).

Although students are often exposed to traumatic situations during their fieldwork education such as treating patients who have severe burns, who are paralysed, suffer from HIV/AIDS and even deaths of patients, all of which are generally experienced as traumatic by most students, the impact does not generally leave them incapacitated, since supervisors and faculty debrief students on a regular basis.

2.4.5 The fieldwork educator (supervisor) in the relationship

Research on supervisors' experience of fieldwork education as well as how they are perceived by students are well documented in literature. Some of these findings will be set out below.

In the eighties Christie, Joyce and Moeller (1985b) conducted a study on occupational therapy students and their supervisors in America and found that supervisors who were competent, flexible, and enthusiastic and who adapted their styles to meet each student's needs were regarded as effective. Twelve years after their study Hummell (1997) conducted a similar study at one Australian university. The findings in respect of the supervisors' interpersonal communication skills were consistent with those of Christie et al.'s (1985b), and in addition indicated that effective supervisors showed empathy and were supportive of students who felt anxious about their fieldwork.

Supervisors' experience of the supervisory process however, showed that "supervisors do not find supervision a comfortable task in which to engage". (Sweeney, Webley, & Treacher, 2001a, p. 338). Demands placed upon them require, among others, sensitivity to students' needs, teaching of clinical reasoning skills, providing students the opportunity for reflection on their endeavours, giving constructive feedback as well as taking a stand on matters of principle.

Research conducted by other health professionals had similar findings. In a literature review which compared both clinical supervisor and student perceptions on helpful and hindering clinical instructor's characteristics in allied health care settings, Levy et al. found that students valued supervisors who enhanced their learning, had good communication skills, provided constructive feedback and helped them to develop self-confidence (Levy, et al., 2009). Stormont, who studied the significance of interpersonal relationships in practicum supervision of clinical dieticians who did their graduate diploma in nutrition and dietetics, employed an orientation qualitative analysis based on the Myers-Briggs Type Indicator (Stormont, 2001). Their findings indicated that students perceive an effective supervisor as tolerant, authoritative, helpful, friendly and understanding.

These studies however do not indicate how the supervisors' interpersonal communication skills have a bearing on students' learning outcomes (Hummell, 1997) such as the students' ability to apply clinical reasoning skills during their fieldwork education.

What comes to mind therefore is **how the supervisors' interpersonal communication really affects a students' ability to learn clinical reasoning skills during fieldwork education.**

Although interpersonal communication in the supervision of occupational therapy students was internationally investigated (Hummell, 1997; Laitinen-Väänänen, Talvitie, & Luukka, 2007) no published research in respect of this aspect could be found in the South African context.

2.4.6 The student in the relationship

A number of authors reporting on students' interpersonal communication in the supervisory relationship mentioned various factors that could have an influence on the student. One such factor could be their stage of development during their fieldwork education (Garrett & Schkade, 1995).

Differing behaviours like the following (Bernard & Goodyear, 2004) could manifest:

- The student needs to protect him/herself

- The student wants to avoid the situation
- The student feels anxious
- The student needs to feel competent
- The student's transference towards the supervisor

2.5 Assessment of clinical reasoning skills in the practical exam

2.5.1 The purpose

The purpose of the examination of clinical reasoning during a student's practical exam is to assess her/his ability to do scientific, narrative, pragmatic, interactive and ethical reasoning. Since conditional reasoning requires deep insight and experience; (Roberts, 1996) this mode of reasoning is not examined to the full. The grades students receive should indicate whether they assimilated the necessary theory and application of knowledge to qualify as occupational therapists.

In addition the exam situation assesses the students' ability to function under pressure and to solve problems in a short space of time.

2.5.2 The role of the examiner

It is the examiners' responsibility to determine whether students have obtained the necessary insight and skills to employ clinical reasoning to a satisfactory level.

Grades are allocated according to the same marking scheme or rubric (Appendix C) that is used during the students' fieldwork education.

2.6 Conclusion

In reviewing the literature on the development of the occupational therapy profession it was found that it advanced from fairly reductionist principles to a holistic view with emphasis on clinical reasoning, occupation and a client-centred approach.

Various platforms, from classroom to fieldwork, are employed to teach students to become competent in clinical reasoning. Fieldwork education, under the supervision of a qualified occupational therapist, plays a vital role in furthering a student's ability to reason clinically and for this a sound supervisory relationship is required.

Consequently the supervisor's interpersonal strategies in dealing with students will have to be examined in order to empower them in their task of education.

CHAPTER 3

3. THE INVESTIGATION

The investigation is presented in the following **two parts:**

The research designs are described first to indicate how the research was planned according to the protocol.

Then the method of how the research was implemented is described next.

Chapter 3 is presented in line with the co-supervisor's expectations.

3.1 Research design

The research design will be set out in the following sequence:

- Purpose statement
- Research questions
- Research design
- Rationale for research design
- Type of mixed methods strategies
- Context of research
- Research techniques
- Trustworthiness
- Ethical considerations

3.1.1 Purpose statement

The purpose of the study will be to examine interpersonal communication factors in the supervisory relationship that play a role in enhancing occupational therapy students' clinical reasoning during physical fieldwork education.

3.1.2 Research questions

The primary research question for this study is the following:

What are the interpersonal communication factors in the supervisory relationship that play a role in enhancing occupational therapy students' clinical reasoning during physical fieldwork education?

To answer the primary research question the following six secondary research questions are posed:

- How do the interpersonal communication patterns of supervisors in the physical field compare with the grades of final year occupational therapy students for their clinical reasoning in the final practical exam?
- How do the final year occupational therapy students' experiences of the nature of their relationship with their supervisors compare with the grades they obtained for their clinical reasoning in the final practical exam?
- How do the supervisors' feedback styles compare with the grades of the final year occupational therapy students for their clinical reasoning in the final practical exam?
- How do those comments that the students receive on their Work Habits Reports, made by their supervisors about their clinical reasoning skills, compare with the grades students obtained for their clinical reasoning skills in the final practical exam?
- How do the grades students receive from their supervisors for their mid-term clinical reasoning skills compare with the grades they obtained for their clinical reasoning skills in the final practical exam?

- How do the grades students receive from their supervisors for their end of term clinical reasoning skills compare with the grades they obtained for their clinical reasoning skills in the final practical exam?

3.1.3 Mixed methods research design

In this study a mixed methods research design is proposed to answer the research question. The mixed methods research design, which emerged during the 1960s, amalgamates quantitative and qualitative research methods. It is defined by Creswell et al. as "the collection or analysis of both quantitative and qualitative data in a single study in which the data are collected concurrently or sequentially, are given priority [status], and involve the integration of the data at one or more stages in the process of research" (Creswell, Plano Clark, Gutmann, & Hanson, 2003, p. 212).

Since the mixed methods research design comprises both qualitative and quantitative research methods these concepts will be described first.

i. Qualitative research

Although there seems to be no consensus on the definition of qualitative research (Mason, 2002) the definition of Creswell (2007, p. 37) appears to be inclusive of all the characteristics of qualitative research. He states that "qualitative research begins with assumptions, a worldview, the possible use of a theoretical lens, and the study of research problems inquiring into the meaning individuals or groups ascribe to a social or human problem. To study this problem, qualitative researchers use an emerging qualitative approach to inquiry, the collection of data in a natural setting sensitive to the people and places under study, and data analysis that is inductive and establishes patterns and themes. The final written report or presentation includes the voices of participants, the reflexivity of the researcher, and a complex description and interpretation of the problem and it extends the literature or signals a call for action". Extrapolating from this definition it appears that qualitative researchers gather data from participants' personal views in a natural environment using inductive reasoning to analyse the data.

ii. Quantitative research

In quantitative research data is collected in the form of numbers and analysed by means of statistical methods which lends itself to precise measurement (Polit & Beck, 2010; Terre Blanche, Durrheim, & Painter, 2006). Numerical data are collected and analysed in a systematic and objective way (Ivankova, Creswell, & Plano Clark, 2010).

3.1.4 Rationale for mixed methods research design

Various authors embrace the use of both qualitative and quantitative research methods in a single study and quite a few authors articulated reasons for doing so (Onwuegbuzie & Leech, 2006; Collins, Onwuegbuzi, & Sutton, 2006; Newman, Ridenour, Newman, & DeMarco, 2003; Punch, 1999; Greene, Caracelli, & Graham, 1989; Polit & Beck, 2010).

Polit and Beck (2010, p. 285) state that certain research questions require a mixed methods approach on pragmatic grounds and give the advantages of this design as:

> **Complementarity** – Qualitative and quantitative approaches can support each other and thus avoid the limitations of a single approach.
>
> **Incrementality** – Progress on a topic can be incremental in that qualitative findings can generate hypotheses to be tested quantitatively and quantitative findings can be clarified qualitatively through in-depth probing.
>
> **Enhanced validity** – By triangulating the researcher can be more confident about the validity of the results

Although published more than 20 years ago Greene et al.'s (1989) five rationales for using a mixed methods research design are deemed to be all-encompassing. According to these authors a study's validity can be increased if it demonstrates five strategies, viz. triangulation, complementarity, development, initiation and expansion. According to these authors one or more of these rationales would prompt a researcher to employ a mixed methods research design. Before describing each of these rationales and how they will be incorporated in the study it is, however, worth

exploring the meaning of “validity” in the context of a mixed methods approach as it is to be applied in the study .

Polit and Beck (2010, p. 490) states that validity is seen in some quarters as associated with the positivist paradigm found in quantitative research and therefore an inappropriate goal in qualitative research that deals with naturalistic or critical paradigms. Four criteria are identified, viz. credibility, dependability, confirmability and transferability, for the *trustworthiness* of qualitative research that can be seen as paralleling the criteria of internal validity, reliability, objectivity and external validity in quantitative research.(A fifth criterion, authenticity, that is more distinctively within the naturalistic paradigm was later added); (Polit & Beck, 2010, p. 490). The words “validity” and “trustworthiness” will therefore be used in the study as interchangeable to describe the integrity or truth value of the methodology and findings. This subject will be discussed in more detail on p. 95.

3.1.4.1 Triangulation

Triangulation (Terre Blanche, Durrheim, & Painter, 2006), “is based on the assumption that any bias inherent in a particular data source, investigator and method would be neutralized when used in conjunction with other data sources, investigators and methods” (De Vos, Strydom, Fouche, & Delport, 2005, p. 361).The origin and explanation of triangulation is set out below.

Triangulation was originally developed by land surveyors to determine the position of a single point by reference to other known points. Two, or preferably three, reference points are generally used as the given position of a sole reference point, or the measurement of the direction and distance to such a point, could contain errors or instrument bias. Even with modern, very accurate, measuring techniques it is often found that the position of the unknown point is more accurately determined by combining the results obtained from measuring to several reference points. A schematic representation is depicted below in Figure 3-1: Triangulation schematic

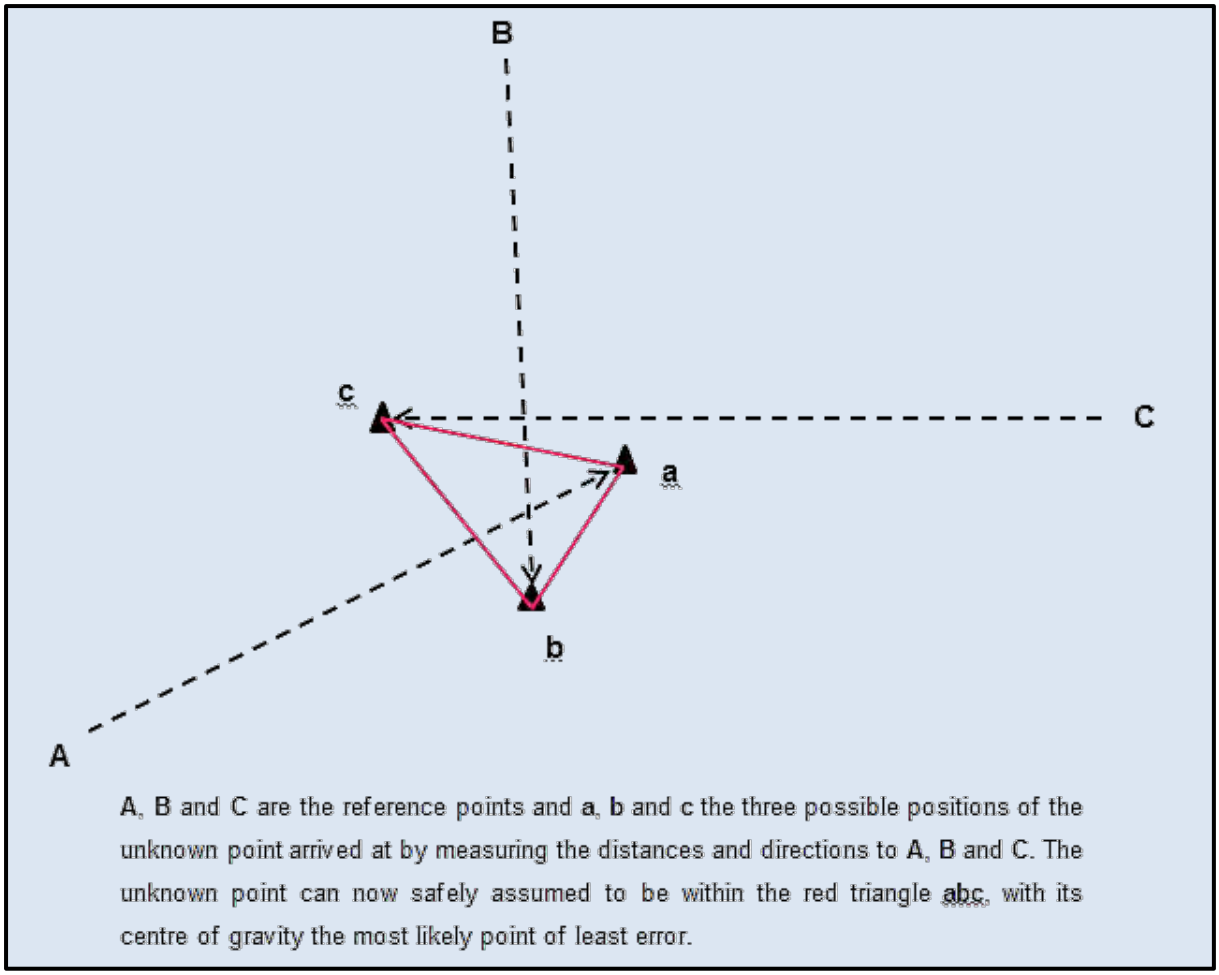

Figure 3-1: Triangulation schematic

Borrowing from the engineering example above, a polygon circumscribing effective supervisory interpersonal communication characteristics in the teaching and learning of clinical reasoning skills can thus be created.

Consequently in order to corroborate and verify the research findings, data will have to be generated, collected, analysed and interpreted using multiple methods (Powell, Mihalas, Onwuegbuzi, Suldo, & Daley, 2008; Hansen, Creswell, Plano Clark, Petska, & Creswell, 2005). Although most of the data generation and analysis will be qualitative in nature, especially with regard to interpersonal communication behaviour, quantitative methods will also be employed to analyse, compare and present the results.

From a social sciences perspective, four types of triangulation were identified by Denzin in 1970, viz. data triangulation, investigator triangulation, theory triangulation

and methodological triangulation (Terre Blanche, Durrheim, & Painter, 2006; De Vos, Strydom, Fouche, & Delport, 2005). These types of triangulation, which will be described next, will all be incorporated in the study.

i. Data triangulation

In order to realise the benefits of triangulation, data for this study will be generated, analysed and interpreted from the following sources:

- Focus groups conducted with both supervisors and students
- One-on-one interviews conducted with both supervisors and students
- Departmental tutor sessions conducted with students during their practical training
- WHR at mid-term and at the end of term reflecting comments about the students' clinical reasoning skills
- WHR at mid-term and at the end of term reflecting students' grades on their clinical reasoning skills
- Students' grades obtained in the practical exam for their clinical reasoning skills

The methods employed to generate and collect data will first have to be developed and pre-tested prior to the actual data collection.

The sources and methods will be elaborated on later in this chapter.

ii. Investigator triangulation

By using different independent investigators inter-subjective agreement can be achieved and researcher effects be reduced (Terre Blanche, Durrheim, & Painter, 2006; De Vos, Strydom, Fouche, & Delport, 2005).

Data will be qualitatively analysed by more than one investigator using different methods such as thematic content analysis (including both a priori and inductive coding methods) and the IPA diagnostic tool and then enumerated, i.e. given quantitative codes. Next the enumerated data will be compared with the students'

grades obtained in the mid-term, end of term and in the final exams (quantitative analysis).

iii. Theory triangulation

Employing multiple perspectives or theories to interpret a single set of data will enhance the trustworthiness (Terre Blanche, Durrheim, & Painter, 2006; De Vos, Strydom, Fouche, & Delport, 2005).

This study set out to use an interpretivist, a constructionist and a positivist paradigm to analyse and interpret the data.

iv. Methodological triangulation

Multiple methods can be used to study a single phenomenon (Terre Blanche, Durrheim, & Painter, 2006; De Vos, Strydom, Fouche, & Delport, 2005).

For the purpose of the study focus groups, one-on-one interviews, departmental tutoring sessions, documentary resources and students' mid-term, end of term and exam grades will be used to study the phenomenon.

3.1.4.2 Complementarity

When searching for clarity of findings one method's findings can be overlapped with another method's findings (Powell, Mihalas, Onwuegbuzi, Suldo, & Daley, 2008).

Findings from the students' inter-subjective experiences of the nature of their relationship with their supervisors (obtained from the focus group and one-on-one interview data) and the supervisors' views gleaned through the same process, also from their comments in the WHRs which will all be superimposed on the findings which emerged from the IPA of the supervisors, will all enhance the validity of the interpretation.

3.1.4.3 Development

Findings obtained from one method can be used to help shape or to inform other methods (Hansen, Creswell, Plano Clark, Petska, & Creswell, 2005).

Findings from the IPA can assist in the coding of data obtained from focus groups, one-on-one interviews and the WHR.

3.1.4.4 Expansion

Expansion seeks to broaden the study by using different methods and in doing so provides richness and detail to the study.

As themes emerge during the research process the researcher might use the information to decide whether and how new data should be gathered (Straus & Corbin, 1998). It is expected that themes could change or new ones emerge from the focus groups, one-on-one interviews and tutor sessions.

3.1.4.5 Initiation

Discovering new information during the course of the research study might stimulate new research questions.

3.1.5 Types of mixed methods strategies

Multiple types of mixed methods research have been classified by different authors. Creswell (2009) for instance identified six typologies of the mixed methods research design which he adapted from Creswell et al's (Creswell, Plano Clark, Gutmann, & Hanson, 2003) classification of 12 typologies. Leech and Onwuegbuzie (2009) also designed a model that classifies mixed methods into 12 typologies.

For the purpose of this study one of the typologies from the Leech and Onwuegbuzi (2009) model will be used since it clearly delineates the phases of the research sequence. These authors describe this typology as a partly mixed, sequential

dominant, status-qualitative design since the “qualitative and quantitative phases occur one after the other, with the qualitative phase being given higher priority and mixing occurring at the data interpretation stage” (Powell, Mihalas, Onwuegbuzi, Suldo, & Daley, 2008, p. 296). This study will occur in three phases, viz. A first phase which will predominantly employ qualitative methods to generate data, a second phase where the themes which emerge from the data will be ordered, analysed and presented in a quantitative manner, and a third phase, where the findings will be integrated and interpreted using a qualitative research design. The phases of this research typology are depicted in Table 3-1: Mixed research method to be applied in the study. Capitals denote a higher order of dominance in the study.

Table 3-1: Mixed research method to be applied in the study

Phase	Sequence	Status	Paradigm	Ontology	Epistemology	Methodology
I Data Generation	1	QUAL	Interpretivist	Inter-subjective reality	Empathetic interaction	Interviews - One-on-one, Focus groups, Tutor sessions
			Constructionist	Constructed reality	Constructing statements made	Deconstruction of textual material written by supervisors, i.e. WHR
	1	Quan	Positivist	External reality	Assessment of students' clinical reasoning according to set criteria	Collecting computer records of students' mid-term, end of term and exam grades
II Data Analysis	2	QUAL	Interpretivist	Inter-subjective reality	Inductive reasoning	Thematic content analysis Data acquaintance Inducing themes Coding data Elaboration
			Interpretivist	Inter-subjective reality	Inductive reasoning	IPA Data acquaintance Identifying interpersonal patterns Coding data using IPA element definition
	3	Quan	Positivist	Objective reality	Statistical analysis of quantified data	Enumerating themes and patterns and comparing with simplistic mathematical weighted averages of students' grades
III Data Interpretation	4	QUAL QUAN	Combination of interpretivist, constructionist Positivists paradigms	Combination of inter-subjective constructed objective reality	Inductive and deductive reasoning	Qualitative interpretation based on quantitative presentation and comparison of results

Next the phases will be discussed in terms of their ontological perspective, epistemological position and methodologies.

3.1.5.1 Phase I – Data generation

i. Theoretical paradigm

"Paradigms are all-encompassing systems of interrelated practice and thinking that define for researchers the nature of the enquiry along three dimensions, viz, ontology, epistemology and methodology" (Terre Blanche, Durrheim, & Painter, 2006, p. 6).

The interpretive paradigm, as employed in this phase of the study, involves "taking people's subjective experiences seriously as the essence of what is real for them, making sense of people's experiences by interacting with them and listening carefully to what they tell us and making use of qualitative research techniques to collect and analyse information" (Terre Blanche, Durrheim, & Painter, 2006, p. 274).

ii. Ontological perspective

"Ontology specifies the nature of the reality that is to be studied and what can be known about it" (Terre Blanche, Durrheim, & Painter, 2006, p. 6).

From an ontological perspective, a phenomenological or interpretive paradigm is chosen to determine and explore the internal reality of subjective experience. The underlying assumptions are the following (Polit & Beck, 2010, p. 15):

- Reality is multiple and subjective, mentally constructed by individuals.
- The inquirer interacts with those being researched; findings are the creation of the interactive process.
- Subjectivity and values are inevitable and desirable.
- Provides an emerging insight grounded in participants' experiences.

This approach, which focuses on participants' inter-subjective experiences of their internal reality, is deemed most fitting in understanding how supervisors and students feel about and give meaning to their social reality (Mason, 2002; De Vos, Strydom, Fouche, & Delport, 2005; Terre Blanche, Durrheim, & Painter, 2006).

This phase also includes a minor quantitative element in that the marks students obtained at mid-term and end of term in the WHR, compiled by their supervisors, as

well as their final exam grades in the subject are collected for later comparative analysis.

iii. Epistemology

"Epistomology specifies the nature of the relationship between the researcher and what can be known" (Terre Blanche, Durrheim, & Painter, 2006, p. 6).

An empathetic, interactive epistemological position is planned to generate data from the participants' subjective experiences in order to understand how occupational therapy students and supervisors perceive the supervisory relationship. The researcher, using pre-determined guidelines to ensure relevancy, will act as facilitator to elicit the reality as perceived by the participants. All care will be taken to keep questions open-ended in order not to lead the responses in a specific direction.

iv. Methodology

"Methodology specifies how researchers may go about practically studying whatever they believe can be known" (Terre Blanche, Durrheim, & Painter, 2006, p. 6).In this study it is planned to generate and collect data from the following six sources:

- Departmental tutor sessions to be held during the fieldwork blocks conducted once a week between the students and faculty responsible for liaising with the training hospitals
- Focus groups which will be conducted separately with students and their supervisors on completion of the fieldwork block. Data from focus groups and one-on-one interviews will be captured verbatim.
- Semi-structured one-on-one interviews to be held with students as well as supervisors on completion of the students' fieldwork block
- Deconstructing comments about students made by their supervisors in the students' WHR.
- The grades allocated to students on their clinical reasoning skills by their supervisors on their mid-term and end of term WHR and the students' final practical exam grades as agreed by internal and external examiners on the

students' clinical reasoning skills during the final practical exam in the physical field.

3.1.5.2 Phase II – Data analysis

i. Theoretical paradigm

The gathered data will be predominantly qualitatively analysed to determine the thematic content and interpersonal patterns displayed by supervisors. The results of this analysis will then be enumerated and a positivist or quantitative paradigm employed to order and presents the results.

ii. Ontology

An interpretive paradigm will be employed in the qualitative analysis of the data. Data will be analysed from both the transcribed data [thematic content analysis] which will "capture the entire character of the discussion, warts and all" (Millward, 1995, p. 286) and directly from the audiotapes [IPA]. The nature of the investigation is such that the text of transcribed data would not suffice. A great deal can be learned from the tone of voice, the manner and context in which comments were made.

The thematic content analysis is aimed at organising and coding the underlying meaning of what was said in the data-gathering sessions into discrete themes defining the interpersonal communication characteristics of supervisors. These themes, although broadly defined by the research questions, will only be fully developed as part of the analysis. The IPA, although identifying a pattern of interpersonal behaviour for individual supervisors according to pre-defined elements, is also based on the context, underlying message or real meaning of what was said and the manner in which it was communicated.

The results from the qualitative research will be ordered and presented in a quantitative manner to enable definitive conclusions in terms of the general or typical factors contributing to effective or ineffective interpersonal communication in the supervisory relationship. As relatively simple and straightforward mathematical and statistical processes will be used, this phase can also be described as using a

positivist paradigm which will “aim to provide an accurate description of the laws and mechanisms that operate in social life” (Terre Blanche, Durrheim, & Painter, 2006, p. 6). Another view of the positivist paradigm is the following (Polit & Beck, 2010, p. 6):

- Reality exists; there is a real world driven by real natural causes.
- The inquirer is independent from those being researched.
- Values and biases are to be held in check; objectivity sought.
- Measured, quantitative information; statistical analysis. Emphasis on discrete, specific concepts and generalisations sought.

iii. Epistemology

Thematic content and interpersonal pattern analysis will both be done within an interpretive paradigm, not only in determining the underlying meanings but also in looking for common themes and pattern elements. Starting from the broadest possible view an open mind is essential to ensure salient issues are correctly identified and do not reflect the personal bias of the analyst, but rather emerge through a process of inductive reasoning.

As far as the purely quantitative work in this phase is concerned the researcher should preferably be clinically objective and detached from the data being worked on. There is no room for subjective interpretation in this phase and it is important that the quantitative part follows sequentially on the qualitative analysis with no going back.

iv. Methodology

The source data for this phase will be in the form of digital audio recordings and although verbatim transcripts must and will be made, the actual qualitative analysis will be largely made directly from source. This is necessary in order to benefit fully from the richness of information contained in the audio material rather than just relying on transcripts.

The positivist paradigm envisaged for this phase of the study consists of simplistic mathematical averages weighted to quantify how the actual exposure of students to

specific interpersonal communication factors influence their learning experience and result in high, medium and low performance.

3.1.5.3 Phase III – Data interpretation

i. Theoretical paradigm

In the last phase, interpreting findings and making convincing arguments about the factors contributing to students' clinical reasoning skills during their fieldwork education will be predominantly in the realms of qualitative research within an interpretive paradigm.

In this phase, the researcher will amalgamate, interpret, argue and draw conclusions by means of the following approaches as set out by (Mason, 2002, p. 176):

- Arguing evidently
- Arguing interpretively and narratively
- Arguing evocatively
- Arguing reflexively and multi-vocally

ii. Ontology

The results from the analysis performed in Phase II will be triangulated, interpreted and analysed in this phase. The IPA results will be used as a basis (compared and augmented with the results obtained from other data gathering sources) for the qualitative interpretation. In this way all that "can be known about" (Terre Blanche, Durrheim, & Painter, 2006, p. 6) the effect of interpersonal communication factors as determined in the study will be incorporated.

iii. Epistemology

The role of the researcher in this phase will be to integrate, interpret and argue the findings.

iv. Methodology

The methodology that will be applied during this phase will be mostly in the form of a descriptive interpretation of the triangulated findings from the previous phases illuminated by means of the literature. The process will be inductive and will focus on the interpersonal communication factors conducive for the students' mastery of clinical reasoning skills during their fieldwork education.

3.1.6 Techniques

3.1.6.1 Sampling

i. Population

The intended population for the study will include the 2007 final year occupational therapy students from the University of Pretoria (whose fieldwork education takes place in a hospital setting where patients suffering from physical conditions are treated) and the fieldwork supervisors at these hospitals.

ii. Sample

It is planned to include in the sample the whole population as defined above; that is all the final year occupational therapy students of 2007 whose fieldwork education takes place in a hospital setting where patients suffering from physical conditions are treated, as well as the fieldwork supervisors at each hospital where these students are placed.

Physical fieldwork is specifically chosen to avoid unnecessary bias as the researcher normally works in the psychiatric field.

iii. Strata

Both genders will be recruited.

Supervisors' ages can range from 24-65 years.

Students' ages can range from 21-40 years.

Both supervisors and students from African, Asian and Caucasian cultural groups will be recruited.

iv. Sample size

It is estimated that the total number of student participants will be all of the 36 final year students from the University of Pretoria as well as the 24 supervisors from the hospitals involved as shown in Table 3-2: Planned Sample Size. Should data not reach saturation by using all the participants the study would have to be continued for another year. The technique of redundancy will have to be employed; the sample will reach redundancy when "the same themes and issues come up over and over again", i.e. if it reaches a saturation point and the research question is answered (Terre Blanche, Durrheim, & Painter, 2006, p. 50).

Table 3-2: Planned Sample Size

Block	STUDENTS			SUPERVISORS	
	Tutor sessions	Focus groups	One-on-one interviews	Focus groups	One-on-one interviews
1	12	12	6	8	4
2	12	12	6	8	4
3	12	12	6	8	4
	36	36	18	24	12

v. Type of sampling

A stratified purposive sampling technique is planned for this study.

Purposive sampling is defined as "a non-probability sampling method in which the researcher selects participants based on personal judgment about who will be most informative" (Polit & Beck, 2010, p. 565). Participants to be recruited will therefore

only be those who can contribute meaningful information in accordance with the study's research questions (Creswell J. W., 2007; Terre Blanche, Durrheim, & Painter, 2006; De Vos, Strydom, Fouche, & Delport, 2005). It is important that they should have something to say about the topic, in particular their experience of the interpersonal communication in the supervisory relationship for both supervisors and students in the teaching and learning of clinical reasoning skills within the physical field.

vi. Permission

The sample selection will depend on permission from the following:

- The Head of the Department of Occupational Therapy at the University of Pretoria to determine if final year occupational therapy students at the University may be included in the research project.
- The CEOs as well as the Heads of the Departments of Occupational Therapy at one private and three public hospitals, provided their occupational therapists supervising final year occupational therapy students could be included in the study.
- The two liaisons responsible for the Friday afternoon tutor sessions at the Department of Occupational Therapy of the University of Pretoria.
- The Postgraduate and Research Committee of Health Care Sciences at the University of Pretoria.
- The Ethics Committee of the Faculty of Health Sciences at the University of Pretoria.
- The Academic Advisory Committee of the School of Health Care Sciences at the University of Pretoria.

vii. Recruitment of participants

After permission is obtained recruitment of the following participants is planned:

- All 36 final year students at the Department of Occupational Therapy of the University to be educated in the physical field in 2007.

- Twenty four supervisors supervising final year students in the physical field during 2007.
- The two liaison persons responsible for the tutor sessions at the Occupational Therapy Department of the University of Pretoria.

3.1.6.2 Data generation

As explained in 3.1.4 data will be generated from the following six sources:

- Focus groups
- One-on-one interviews
- WHR
- Tutor sessions
- M-T and EoT grades
- Exam grades

Sufficient data on the role of interpersonal communication in the teaching and learning of clinical reasoning skills should be gathered ensuring that -

the phenomenon being studied can be approached from different angles,

data obtained will corroborate or confirm findings and

rich information is obtained which will provide comprehensive answers to the research question.

(Polit & Beck, 2010; Denzin & Lincoln, 2008; Terre Blanche, Durrheim, & Painter, 2006; Mason, 2002; Straus & Corbin, 1998).

The methods employed to collect data will first have to be developed and pre-tested prior to the actual data collection.

Each data source and collection method will be discussed next.

i. Focus groups

Focus groups, the first source from which data is to be collected, will be conducted with final year occupational therapy students after completion of their fieldwork block as well as with their supervisors.

- ***Focus groups defined***

Focus groups are carefully planned group discussions aimed at generating information from participants who share a similar type of experience (Terre Blanche, Durrheim, & Painter, 2006; De Vos, Strydom, Fouche, & Delport, 2005; Millward, 1995). One of the advantages of focus groups is their "isomorphism to the process of opinion formation" in as far as individuals form opinions about a variety of issues through communication with others (Albrecht, Johnson, & Wather, 1993, p. 54).

- ***Size of focus groups***

Literature on focus groups varies with regards to the size of the group. While most authors believe that focus groups are made up of six to 12 participants with an average of eight, Krueger (1988) suggests that a focus group comprises between four to eight members. For the purpose of this study eight supervisors (two from each of the four hospitals) and 12 students (the number placed at each hospital) will be recruited following each fieldwork block.

- ***Consent***

The consent of the supervisors and students will have to be obtained first. It is planned to use the documents contained in Appendix E: Information Leaflet and Informed Consent of Students, and Appendix H: Information Leaflet and Informed Consent for Supervisors, for this purpose.

- ***Interview guide***

An interview guide will be necessary to prompt the moderator to recall the main issues to be discussed (Millward, 1995; De Vos, Strydom, Fouche, & Delport, 2005). According to Millward (1995, p. 284) "fixed questions may undermine the ability of the moderator to listen analytically to content of the discussion thereby overlooking the implications of what is said" and questions will therefore be mostly open-ended.

The intention is to use the provisional interview guides which were developed and tested by the researcher in the pre-test in 2006 as shown in Appendices F and I. However, circumstances may cause these guides to be adapted.

- ***The moderator***

The researcher will also be the moderator. Because the facilitation of focus groups necessitates thorough knowledge and skills, the researcher will be attending a one semester module on focus groups to be presented to their post-graduate students by the Department of Psychology at the University of Pretoria

The moderator will facilitate the process by asking clear, short, one-directional, open-ended questions related to the research question during the discussion. What the supervisors and students say during the discussions will constitute the essential data for the focus group sessions.

The moderator will create a non-threatening environment so that participants will be encouraged to share experiences, feelings and opinions about the supervisory relationship and the teaching and learning of clinical reasoning skills without fear of being criticised or being pressurised into reaching consensus (Morgan & Krueger, 1998; Mason, 2002).

- ***Information to participants***

In the process of recruitment the supervisors and students will be informed -

about the purpose of the research,

that their identity will not be revealed,

who the other group members are,

what will be required of them,

that an incentive will be paid for their participation and to cover transport costs,

that refreshments will be provided, and

of the time and venue of the group session.

Most of the above is contained in the Information Leaflets and Informed Consent contained in Appendices E and H. However, at the actual focus group all the required information will again be shared with the participants.

- ***The focus group procedure***

The focus group will follow a certain procedure:

Introduction: A quick recap of information shared previously such as the purpose of the study, confidentiality, etc., and a brief description of the process to be followed during the group session to clear up any misconceptions.

Warm-up: In order to facilitate spontaneity and to stimulate interaction among participants a suitable warm-up activity will be used.

Clarification of terms: Terms that will be used during the session will be clarified by the researcher to ensure common understanding during the actual discussion.

Open-ended questions: Open-ended and prompting questions (previously developed and included in the interview guide), will be used by the moderator to guide the discussion, ensure all topics are covered and to keep the process flow going.

Wrap-up: Before concluding the session the salient points emerging from the group discussion will be summarised by the moderator to verify general understanding.

Member check: The relative comfort or discomfort of group members with the process and outcomes will be determined through pertinent questioning and any remaining concerns addressed.

Closing statements: General appreciation for participation, again stressing confidentiality and a brief summary of what will now be done with the information tabled in the focus group.

ii. One-on-one interviews

The third source of data collection will be of semi-structured one-on-one interviews with both the students and their supervisors.

- ***One-on-one interviewing defined***

Intensive interviewing is defined as “a qualitative method that involves open-ended, relatively unstructured questioning in which the interviewer seeks in-depth information on the interviewee’s feelings, experiences, and perceptions” (Lofland & Lofland, 1984, p. 12).

According to Terre Blanche e*t al.* (2006, p. 297) “conducting an interview is a more natural form of interacting with people than making them fill out a questionnaire, do a test, or perform some experimental task, and therefore it fits well with the interpretive approach to research”.

In the one-on-one interview the researcher will cover a number of topics, the precise questions and their order will not be fixed however since they will develop as a result of the interaction with the participant.

- ***Sampling and recruitment***

One-on-one interviews will be conducted with supervisors and students who participated in the focus groups and who did not participate to the full either because of language barriers or because they did not feel confident enough to voice their opinion.

- ***Consent***

Here also the consent of the supervisors and students will have to be obtained first by means of the Information Leaflet and Informed Consent forms contained in Appendices E and H.

- ***Information to participants***

In the process of recruitment the student and supervisor will be informed -

about the purpose of the research,

that his/her identity will not be revealed,

what will be required of him/her,

that an incentive will be paid for their participation, and

of the time and venue of the interview.

As for the focus groups, most of the above information is contained in Appendices E and H but before commencement of an interview this will again be shared with the interviewee.

- ***Interview guide***

Items for the one-on-one interviews will be based on themes that occurred in the focus groups and are therefore not finalised at this stage. The provisional guides as developed in the pre-test stage appear in Appendices G and J.

- ***Conducting the one-on-one interviews***

The interviews will be conducted by the researcher in a neutral environment satisfying the requirements in respect of location and setting as outlined by Millward (1995) and Nieuwenhuis (2010). Interviews will be semi-structured and will aim, in a conversational way, to determine how supervisors and students perceive the supervisory relationship as well as the teaching or learning of clinical reasoning skills. Interviews will be conducted by means of predetermined entry questions to help the participants to reflect on these topics. The interviews should, however, be fluid and flexible (Mason, 2002). Questions asked will only be asked to obtain details and clarification and not to force the participant in any direction (Kvale, 1996).

iii. Work Habits Report

The fourth source from which data will be collected is the students' WHR.

On two separate occasions students each receives a WHR from their supervisors about their clinical reasoning skills as part of their professional behaviour during their fieldwork education. Because the students are supervised by more than one supervisor, viz. matrix supervision (Morse, 1998), the WHR is compiled from contributions by all the supervisors involved.

The first WHR is conducted after the first two weeks of training and the second on completion of the fieldwork block.

iv. Tutor sessions

A tutor session with the final year occupational therapy students over the six week fieldwork period is usually conducted once a week at the Department of Occupational Therapy by the lecturer liaising with them. The aim of this learning opportunity is to let the students reflect consciously on aspects of their fieldwork experiences for the past week as well as to enhance their clinical reasoning skills. The intention is to record the students' subjective experiences of the supervision they received to date, including the interaction with their supervisors, as well as the discussion of their clinical reasoning for the treatment of patients.

v. Grades obtained for mid-term and end of term

Since the WHR is both formative and summative in nature students receive feedback on the quality of their behaviour, and a grade is attached to it so as to quantify the behaviour. Professional behaviours and grade allocation are depicted in Table 3-3: Work Habits Report.

Table 3-3: Work Habits Report

Professional behaviour	Mark distribution
Work performance	10
Ethical behaviour	20
Professional development	10
Patient care (clinical reasoning)	40
Interpersonal relationships	20
Total	100

The outcome of patient care in the WHR was used in the study since the grades obtained and the supervisors' comments were a reflection of the quality of the students'clinical reasoning ability.

vi. Exam grades

The students' skills in clinical reasoning are tested at the end of their final year through a practical examination in the physical field. This exam is subject to the normal external examiner verification process and, as it is deemed to give a fair and unbiased view of their prowess in the subject, it will be used as the ultimate indicator of supervisory interpersonal communication impact on their clinical reasoning ability.

3.1.7 Recording data

Tutor sessions, focus groups and one-on-one interviews will be recorded on audio-tape or digital equivalent as entire discussions.

Advantages:

- An accurate record of the actual discussion will be kept and can be referred to at any time in the future.
- The audio materials will not only provide a verbatim record of what was said but will also reflect how things were said – there is thus an emotional content that would be missing from just a written record.

Disadvantages:

- Awareness of the conversation being recorded, which must be ensured in the interests of transparency and ethical conduct, can act as an inhibitor on the person being interviewed.
- Extreme care will be taken in terms of the storage of the recorded material as the interviewee can be identified from the audio tapes.

High sensitivity latest technology equipment will be used to ensure the best possible recording quality. Care will also be taken in the selection of the equipment to ensure that subsequent transcription can be done easily with compatible computer software.

3.1.8 Transcribing data

Practical considerations in the transcription process are the following;

Copies of the recorded material will be used in the actual transcription process. To safeguard against inadvertent loss of material the original recordings will be stored separately and securely.

As the transcription process requires multiple passes over the same material to ensure accuracy, the system hardware and software should be robust without loss of quality throughout.

All working copies of recorded material will be destroyed upon conclusion of the transcription process with only the original recordings being kept in a safe and secure place for the prescribed five year period.

Transcribing data manually is a time consuming process. An interview lasting an hour can take up to 20 hrs to transcribe and sufficient time should be allowed for this.

The responses will be transcribed verbatim. Since the aim of the qualitative research will be to gain insight into the participants' perceptions of the supervisory relationship in fieldwork education it will be important to capture the entire discussion as is.

Although transcription and subsequent coding seem to be a mechanical task (Millward, 1995, p. 287), the process undoubtedly will lead to data analysis from the outset.

3.1.9 Data coding and analysis

Following transcription the data will be coded and analysed.

Thematic content analysis will be through a combination of bottom-up and top-down approaches done by an independent coder and the researcher to determine which interpersonal communication themes and patterns emerge from the collected data.

The audio material of the supervisors who participated in the focus groups and one-on-one interviews are to be analysed by an independent clinical psychologist using the Interpersonal Pattern Analysis diagnostic instrument.

3.1.9.1 Thematic content analysis

Thematic content analysis, an interpretive analysis approach, will be used to code raw data into themes and then sub-divided into categories and, if necessary, sub-categories (Parahoo, 2006). A theme, i.e. “Style”, identifies the general characteristic being investigated. A category, i.e. “Authoritarian” or “Laissez-faire” defines the specific behaviour within the theme. Emphasis will be on the data’s meaning with quantification following only at a later stage.

A combination of bottom-up and top-down approaches (Terre Blanche, Durrheim, & Painter, 2006) will be used to analyse and code the data. There are certain advantages to employing only a bottom-up or a top-down approach but also drawbacks to using a single approach. In the study the intention is to get the best of both worlds by starting with a top-down approach which is then refined by modifying the initial themes and categories so determined, based on the detail emerging in the course of the analysis. Additional themes and or categories can be added if warranted. To support the combination approach the tutor sessions and the interview guides for both the focus groups and the one-on-one interviews will cater for general and specific questions. Although the WHR form is structured around certain themes these are, especially with regard to the interpersonal relationships, at a fairly high level which will need to be expanded on for application in the study.

The two approaches can be summarised as follows:

i. Bottom-up approach

A bottom-up approach is used to induce themes that underlie the raw data obtained, in this case from the tutor sessions, focus groups and one-on-one interviews. The process would normally comprise (Mason, 2002; Terre Blanche, Durrheim, & Painter, 2006) the following:

- ***Literal reading***

In order to get acquainted with the texts the researcher will have to read it several times. Elements of data recognized from the tutor sessions, focus groups and one-on-one interviews, appropriate to the research question, will be retrieved manually from the text and categorised.

- ***Reading for underlying messages***

Literal reading will be followed by the reading of the underlying messages which will be confirmed by the participants' non-verbal behaviour (e.g. laughter and tone of voice).

- ***Interpretive reading: Inducing themes***

The meaning of the underlying messages being interpreted by reading beyond the data, viz. what the researcher could infer from it.

This process approach is set out in Figure 3-2: Bottom-up approach to content analysis.

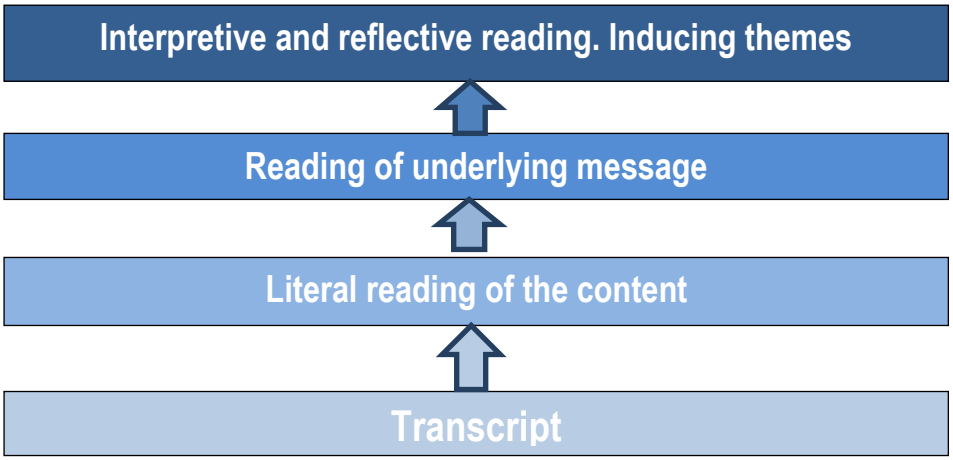

Figure 3-2: Bottom-up approach to content analysis

ii. Top-down approach

In the top-down approach themes and categories are developed from the interview guides used by the moderator during the focus groups and one-on-one interviews as

well as the students' Work Habits Reports (Millward, 1995).The transcribed material is then coded by classifying instances fitting the categories using the same literal, underlying message and interpretive and reflective reading techniques applied to the bottom-up approach (Terre Blanche, Durrheim, & Painter, 2006).This process approach is set out in Figure 3-3: Top-down approach to content analysis.

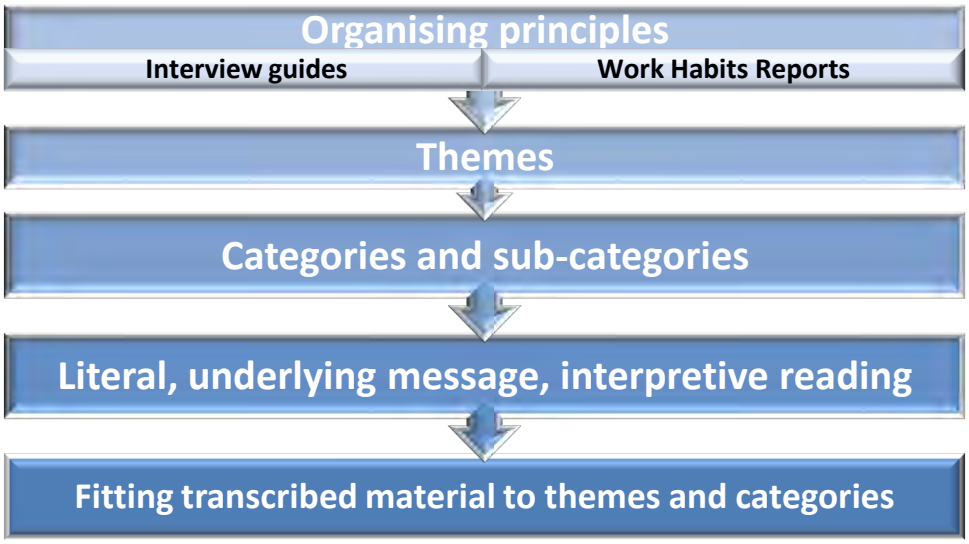

Figure 3-3: Top-down approach to content analysis

3.1.9.2 Analysis of coded material

The themes which emerge from the thematic content analysis and the Interpersonal Pattern Analysis are to be compared with students' grades for their clinical reasoning skills obtained in the final practical exam in the physical field.

A quantitative analysis, mostly aimed at aggregating, clarifying and presenting data in a format suitable to support further qualitative evaluation rather than being a sophisticated statistical analysis in its own right, is planned. It is expected that typical supervisory behaviour patterns associated with improved student performance will emerge from this.

3.1.9.3 Interpersonal Pattern Analysis

Working from the original audio recordings of focus groups and one-on-one interviews with supervisors an Interpersonal Pattern Analysis (IPA) will be done by an independent psychologist.

3.1.10 Trustworthiness

Trustworthiness in qualitative research is defined by Polit and Beck (2010, p. 570) as "the degree of confidence qualitative researchers have in their data, assessed using the criteria of credibility, transferability, dependability, confirmability and authenticity. These criteria were originally developed by Lincoln and Guba (1985), supported by Krefting (1991) and described by Polit and Beck (2010, p. 492) as follows:

- "Credibility refers to confidence in the truth of the data and interpretations of them.
- Dependability refers to the stability or reliability of data over time and over conditions.
- Confirmability refers to the objectivity that is the congruence between two or more independent people about the data's accuracy, relevance, or meaning.
- Transferability refers to the extent to which qualitative findings can be transferred to other settings or groups.
- Authenticity refers to the extent to which researchers fairly and faithfully show a range of different realities".

According to Polit and Beck (2010, p. 494) the quality in a qualitative inquiry can be enhanced to satisfy the above criteria through the following:

- **Prolonged engagement and persistent observation**. The data collection for this study is planned to take place over a period of one year and by engaging three groups of students during their fieldwork blocks. The supervisors for all three groups will be the same throughout the year and will

thus be engaged repeatedly. All focus groups and one-on-one interviews will be conducted with the principle of redundancy in mind.

- **Data and method triangulation**. Multiple data sources and methods will be used to verify the results as discussed under triangulation in 3.1.4.1.

- **Comprehensive and vivid recording of information.** Sample size for the study is planned to be inclusive and large enough to prevent skew. Any exclusion from the sample will be identified and justified. All interviews and group sessions will be audio recorded and supported by field notes where feasible. All original information such as digital audio recordings, transcriptions, coding and quantitative analysis are to be kept on record and be available for verification should it be required.

- **Member checking.** The one-on-one interviews will specifically be focused on ensuring that the views of all participants in the focus groups are heard and interpreted correctly.

- **Investigator and theory checking.** Different researchers will be used in the study to do the IPA and thematic content analysis.

- **Searching for disconfirming evidence and competing explanations**. Results will be quantitatively analysed and presented to enable unbiased evaluation.

- **Peer review and debriefing**. The intention in the study is that both IPA and thematic content analysis will be done from the original audio tapes by different researchers. Should major discrepancies surface in triangulating this data further external review will be necessary.

- **Thick and contextualized description**. Verbatim quotes from the participants will be included in the study to elucidate coding and IPA classifications.

- **Researcher credibility**. The study originated from the findings of a previous PhD study (De Beer, 2004) on a related subject completed by the researcher. The researcher's extensive experience in occupational therapy education in general and group therapy in particular, as well as her

attendance of a course on focus groups in preparation for the study, lends credibility to her as researcher.

The positivist criteria for the quantitative part of the study, viz. internal validity, reliability, objectivity, and external validity, can be seen as paralleling the first four criteria for trustworthiness, credibility, dependability, confirmability and transferability (Polit & Beck, 2010, p. 492). The quality enhancements given above, if incorporated as planned, should ensure the validity of the quantitative work in the study, especially in view of the quantitative part of the study being planned to be simple averages and weighted averages of the phase 1 qualitative results.

3.1.11 Ethical considerations

All ethical undertakings included in the study protocol as approved by the Faculty of Health Sciences' Research Ethics Committee, University of Pretoria, will be met.

The study is being planned to meet the following criteria, identified by Breakwell et al. (1998, p. 29) based on publications of the British Psychological Society, to ensure the ethical feasibility of the research:

- **The protection and welfare of participants:** Participants in the research will be protected from being either physically or mentally harmed by the research process. The principle of respect for human dignity, which is a fundamental component of ethical behaviour, will be adhered to.

- **The principle of informed consent:** Participants will be fully informed of all aspects of the research which might influence their willingness to participate in the research. The position of the researcher, which can to some extent be seen as one of influence over the student participants, and any payments to the participants shall not be used to induce them to accept undue risks.

- **The use of deception:** It is sometimes "simply not possible to tell the participants everything they could be told because, if they had knowledge about the actual purpose of the investigation, they might alter those critical aspects of their behaviour which are of interest to the investigator, thereby undermining the purpose of the study" (Breakwell, Hammond, & Fife-Schaw,

1998, p. 30). Care will be taken to ensure no information will be withheld if this could lead to unease at a later stage.

- **Debriefing of subjects:** After the data had been collected, participants shall be given any information which they might need or request about the nature of the study. The focus groups and one-on-one interviews will specifically afford an opportunity towards the end to initiate this process.

- **Subjects' right to withdraw from an investigation:** This shall be made clear to participants from the outset.

- **Invasion of privacy in observational research:** Applicable to naturalistic observation of subjects in their everyday settings and therefore not all that applicable to this study. All participants will be made aware in advance that audio recordings will be made of interviews and group sessions and also the intended use of these recordings.

- **Confidentiality and the anonymity of data:** All information obtained about a subject must be confidential unless agreed otherwise. If data is published, the subject should not be identifiable (Breakwell, Hammond, & Fife-Schaw, 1998, p. 32). Although all subjects will be identified through a code known only to the researcher all care will be taken to ensure no participant can be identified through the material to be published.

De Vos et al. (2005, p. 57) echo the above but also add the following criteria pertinent to this study;

- **The competence of the researcher:** Researchers are ethically obliged to ensure that they are competent and adequately skilled to undertake the proposed investigation as research can fail or produce invalid results if this is not the case. This was discussed under 3.1.10.

- **Release or publication of the findings:** There is an ethical obligation on the part of the researcher to ensure that "the final written report is accurate, objective, clear, unambiguous and contain all essential information" without "any emphasis or slanting in order to bias the results" (Breakwell,

Hammond, & Fife-Schaw, 1998, pp. 63,64). The researcher intends to fulfil this requirement.

3.1.12 Pre-test

The interview guides for both the focus groups and one-on-one interviews were pretested with supervisors and students from hospitals different from those that were planned to be included in the research study.

3.2 The method of research implementation

In this section the method implemented in the research is set out.

An interpretive qualitative research approach was employed in an attempt to understand how occupational therapy students and supervisors experience the supervisory relationship and how the latter affect the learning of clinical reasoning skills. “What is distinctive about interpretive approaches … is that they see people, and their interpretations, perceptions, meanings and understandings, as primary data sources” (Mason, 2002, p. 56). An inter-subjective or interactional epistemological position was taken to generate data from the participants’ subjective experiences of the supervisory relationship.

3.2.1 Purpose statement

The purpose statement as planned in Section 3.1.1 of the Research Design remained unchanged.

3.2.2 Research questions

Neither the primary nor secondary research questions as planned in Section 3.1.2 changed in the execution of the study.

3.2.3 Mixed methods research design

A mixed methods research approach as planned in Section 3.1.3 was implemented in performing the study.

3.2.4 Rationale for mixed methods research design

The rationale for using a mixed methods research approach was validated in the study. The application of quantitative techniques to depict the results from the qualitative first phase for further analysis proved invaluable.

3.2.5 Type of mixed methods strategies

A partly mixed, sequential dominant, status-qualitative design was implemented as planned.

3.2.6 Techniques

3.2.6.1 Sampling

i. Population

The population consisted of the 36 final year occupational therapy students from the University of Pretoria in 2007 placed at two private and four state hospitals for their physical fieldwork education and the 21 practising occupational therapists that supervised them at those hospitals.

ii. Permission

The participants in the study were approached after permission was obtained from -

- the Head of the Department of Occupational Therapy at the University of Pretoria that the 2007 final year students at the University may be included in the research project.
- the CEOs as well as the Heads of the Departments of Occupational Therapy at the various hospitals that occupational therapists supervising final year occupational therapy students could be included in the study.
- the physical fieldwork liaisons at the University of Pretoria.

- the Ethics Committee of the Faculty of Health Sciences at the University of Pretoria.
- the Post Graduate and Research Committee of Health Care Sciences.
- the Academic Advisory Committee of the School of Health Care Sciences at the University of Pretoria.

iii. Recruitment of participants

The following participants were subsequently recruited:

Of the 36 students in the class of 2007, all of whom were approached, 33 declared their willingness to participate in the study. Three students did not grant permission due to personal circumstances.

Of the 21 supervisors where the students received their physical practical training, 19 declared themselves willing to participate in the study.

iv. Strata

Students and supervisors included a mix of different cultural, gender and age groups as the situation presented itself. Unfortunately this also meant that only females were included. Details of the demographics of both students and supervisors that finally participated in the study are given in Chapter 4.

v. Consent

As focus groups and one-on-one interview sessions were to be recorded electronically, the consent of the students and supervisors had to be obtained first. The provisional consent forms as contained in Appendices E and H (which inter alia made it clear that participation in the research would be completely voluntary, refusal to participate would involve no penalty and anonymity will be sacrosanct) were used for this.

vi. Sample size

The final sample arrived at is depicted in Table 3-4: The actual sample.

Table 3-4: The actual sample

Block	STUDENTS			SUPERVISORS	
	Tutor sessions	Focus groups	One-on-one interviews	Focus groups	One-on-one interviews
1	12	11	7	7	4
2	12	11	6	4+2 =6*	5
3	12	11	5	3+2=5*	3
	36	33	19	14+4= 18	12
				2 supervisors each attended two focus groups.	

3.2.6.2 Data generation

As was stated in the research design, data from different sources to investigate the same phenomenon would enhance its credibility as well as contribute to a better understanding of the phenomenon (Terre Blanche, Durrheim, & Painter, 2006).

A summary of the sources and methods used to generate and collect data is given in Table 3-5: Methods of data collection, thereafter the various methods employed are discussed in more detail.

Table 3-5: Methods of data collection

Method	Participants	Number
Interpersonal Pattern Analysis	Clinical supervisors	14
Focus groups	Clinical supervisors	7 6 5
	OT students	11 10 11
One-on-one interviews	Clinical supervisors	9
	OT students	22
Work Habits Reports	Supervisors' comments on students' CR Skills	33
	Supervisors' comments on students' IPRs	33
Mid-Term and End of Term grades	Supervisors' marks for students' CR Skills	33
Practical exam grades	Internal & external examiners' marks for students' CR Skills	33

i. Focus groups

- ***Recruitment***

In recruiting supervisors and students for the focus groups they were informed through the Information leaflet and Informed Consent forms contained in Appendices E and H -

- about the purpose of the research,
- that their identity will not be revealed,
- who the other group members are,

- what will be required of them,
- that an incentive will be paid for their participation and to cover transport costs,
- that refreshments will be provided, and
- of the time and venue of the group session.

- ***Focus group size and process***

Although, as stated in the research design, the ideal size for such a group is deemed to be eight, with an acceptable range of between six and 10 members, the sizes of the actual groups varied between five and 11 participants as shown in Table 3-5: Methods of data collection. This was due to practical constraints and is not considered to be unacceptable.

The researcher acted as moderator or facilitator for all groups.

For both supervisor and student focus groups the planned group procedure was followed with only the open-ended questions in the interview guide being different:

- ***Introduction and clarification of terms***

Participants were recruited for a one hour focus group.

On arrival they were invited to refreshments in order to create a relaxed informal atmosphere. When everybody was present they were told that participation was voluntary, they did not have to answer questions if they didn't want to and that they may leave without giving any reason for doing so. They did not need to agree on anything. They were also informed that information would be recorded and that information would be confidential. They were also asked to complete a consent form.

- ***Warm-up***

A warm-up exercise, which consisted of asking participants to introduce themselves and name one of their personal favourite things, was done to break the ice and facilitate participation.

- ***Discussion***

The moderator facilitated the focus groups using an interview guide covering specific areas by means of open-ended questions.

- ***Interview guide for focus groups with supervisors***

The open-ended questions contained in the provisional guide as shown in Appendix I were used with the addition of a further question on the interpersonal relationship between supervisor and student:

  - If you reflect back on the last seven [six] weeks with the students, what comes to mind?
  - If you think of teaching methods, which methods did you use to teach clinical reasoning skills?
  - Giving feedback to students, how did you experience that?
  - How did you deal with a student who resists feedback?
  - How did you deal with difficulties in the interpersonal relationship?
  - Anything else you think is important in terms of supervision that you would like to share?

- ***Interview guide for focus groups with students***

The open ended questions contained in the provisional guide shown in Appendix F were used with only slight emphasis variations as follows:

  - If you reflect back on the last seven [six] weeks of your clinical work, what comes to mind? What are you thinking about?
  - Which teaching style did you benefit most from?
  - Were you taught in terms of clinical reasoning?
  - If we look at feedback, what was good and what was not so good?
  - Anything else you would like to share?

- **Closure**

In closing the focus group the moderator briefly summarised the main points under discussion to check participants' perceptions and thanked the group for their participation.

It is accepted that the focus groups have both strengths and weaknesses. Focus groups produce rich data on the topic of interest and provide a safe and stimulating environment for participants to express their views without fear of being rejected. However, passive participants may be unduly influenced or inhibited by more active members in an attempt to comply with the group norm (De Vos, Strydom, Fouche, & Delport, 2005).

ii. One-on-one interviews

Semi-structured one-on-one interviews were held with 22 students and nine supervisors (mostly chosen from participants in the focus groups) who did not participate to the full due to group dynamics or because some raised specific issues the researcher wanted to pursue further outside the focus group.

- ***Recruitment; information and consent***

In the recruitment process prospective participants were informed through the Information Leaflet and Informed Consent forms -

about the purpose of the research,

that his/her identity will not be revealed,

what will be required of him/her,

that they will receive R100 to defray transport costs, and

of the time and venue of the interview.

As in the case of the focus groups both the supervisors' and students' consent were obtained in writing.

- ***Interviewing process and discussion***

A neutral venue outside the academic or hospital environment was used as far as possible to ensure a relaxed unbiased discussion.

The interviews were semi-structured in that pre-determined entry questions were posed to determine in a conversational way how supervisors and students perceived the supervisory relationship as well as the teaching or the learning of clinical reasoning skills. These open-ended questions, as contained in the provisional interview guides in Appendices G and J, were of necessity different for students and supervisors. However, specific themes for the one-on-one interviews also emerged from discussions in the focus groups.

- ***Closure***

Thank participant for her participation.

iii. Work Habits Report

Students each received a WHR about their professional behaviour during their fieldwork education on two separate occasions from their supervisors. Because students were supervised by more than one supervisor, viz. matrix supervision, the WHR were compiled by all the supervisors involved.

The first WHR was conducted after the first two weeks of education and the second on completion of the fieldwork block. Since the WHR is both formative and summative in nature students received feedback on the quality of their clinical reasoning skills (according to the marking rubric), and a grade was then attached to it so as to quantify the clinical reasoning skills.

iv. Tutor sessions

Tutor sessions conducted by faculty for the final year occupational therapy students of 2007 were attended by the researcher in order to explore the value of this source for data generation. However, it was found that the discussions in these groups centred more on cases treated by students and were not necessarily pertinent to the study. These sessions however, did help in placing the fieldwork education in

context. However, due to the lack of relevant information on the supervisory relationship, the tutor sessions were excluded from the study as a source of data.

3.2.7 Recording data

All focus group discussions and one-on-one interviews were recorded in their entirety. An Olympus DS-2 Digital Voice Recorder was used for this purpose.

Working copies in transcribing the material were made of all digital recordings. Original recordings were securely stored separately on audio disc (CD).

3.2.8 Transcribing data

Verbatim transcriptions were made of all recordings using Olympus and Audiograbber software.

On completion of the study all working copies will be destroyed and only the original recordings kept in a safe place for the required period.

3.2.9 Data coding and analysis

3.2.9.1 Thematic content analysis

As planned in Section 3.1.9, both top-down and bottom-up approaches were used in the thematic content analysis.

Interpersonal communications were identified right at the outset as the research subject or over-arching theme to be investigated, and in compiling the interview guides the researcher identified some broad subsets or themes related to this objective, i.e. feedback and style. In the WHR structure, Table 3-3: Work Habits Report, interpersonal relationships and clinical reasoning were identified as general

themes. From a top-down point of view there were thus some pre-determined themes.

The interview guides however purposefully also included a number of open-ended questions to elicit more information in order to refine and expand on these general themes. This comprises the bottom-up element.

Transcriptions from the focus groups and one-on-one interviews were coded using an approach for recognising and reading of data as put forward by Mason (2005). The sequence of the process was as depicted in **Error! Reference source not found.**.

Initially the researcher sought to generate as many themes and categories as possible. This was the creative part of the process. This enabled the researcher to see features of the data, or of what the data refer to, that might have been overlooked with a more focused approach. Such discoveries guided the researcher in two ways. Firstly it revealed that there was some doubt about one or more of the assumptions with which the researcher began the analysis, i.e. that the participants were not concerned with what the researcher expected them to be concerned with. Secondly, it suggested a different focus for the research.

The aim of the initial analysis of data was to generate themes and categories, each of which collects or gathers together several segments of data, some of which looked promising as a basis for organising the analysis and eventually the research report.

This concern with categories that group many of the data together arises because researchers are usually concerned with stable characteristics or recurrent patterns.

The categories may vary in character too. Some may be obvious, others less obvious, even novel. What appeared to be obvious initially turned out not to be so at all.

Grounded theorising started from relative obvious categories.

The next step was to compare and contrast all the items of data that had been assigned to the same category. Glaser and Strauss (1967) refer to this stage as the “constant comparative method”. The aim of this is to clarify what the categories that

have emerged mean, as well as to identify sub-categories and relations among categories (Glaser & Strauss, 1967).

Seven themes, each with two categories in respect of the nature of the supervisor's interpersonal communication, were identified from focus groups and one-on-one interviews with students.

From focus groups and one-on-one interviews with supervisors one theme with two categories was identified in respect of interpersonal communication.

From the supervisor's comments in the WHR one theme with two categories was also identified in respect of their interpersonal communication.

The transcribed data was then coded according to these themes and categories and a profile for each supervisor's interpersonal communication behaviour constituted.

3.2.9.2 Analysis of coded material

The coded information in terms of supervisor interpersonal communication characteristics was then quantitatively aggregated according to the performance (high, medium and low) of students in the practical exam:

- Weighted average supervisor profiles applicable to each group of students were developed from the various sources of information. The actual exposure of the students in each group to individual supervisors was reflected in these general profiles.
- Simple histograms and spider diagrams based on summary spread sheets were used where possible to demonstrate the distribution of grades and supervisor profiles.

The results from the above were then qualitatively evaluated by way of the available literature as described in Chapter 4.

A statistical correlation between practical exam marks and general academic performance was done for all students to verify the assumption that the supervisor's

behaviour had a measurable impact on the students' performance in the practical exam. In other words, that students did not perform only as could be expected.

3.2.9.3 Interpersonal Pattern Analysis (IPA)

An IPA was performed by an independent psychologist on 14 of the 19 supervisors. This number was determined by concentrating on supervisors of high and low performing students, and also by which supervisors attended the focus groups and one-on-one interviews.

The IPAs were done directly from the audio recordings.

3.2.10 Trustworthiness

The specific elements incorporated in the planning of the study to ensure trustworthiness were largely satisfied as follows:

- **Prolonged engagement and persistent observation.** The data collection for this study took place over a period of one year and engaged three groups of students during their fieldwork blocks. The supervisors for all three groups were the same throughout the year and thus repeatedly engaged. All focus groups and one-on-one interviews were conducted with the principle of redundancy in mind.

- **Data and method triangulation**. Multiple data sources and methods were used to verify the results as discussed under triangulation in 3.1.4.1.

- **Comprehensive and vivid recording of information.** Sample size for the study was inclusive and large enough to prevent skew. Exclusions from the sample were identified and justified. All interviews and group sessions were audio recorded and supported by field notes where feasible. All original information such as digital audio recordings, transcriptions, coding and quantitative analysis were kept on record and are available for verification should it be required.

- **Member checking**. The one-on-one interviews were specifically focused on ensuring that the views of all participants in the focus groups were heard and interpreted correctly.

- **Investigator and theory checking.** Different researchers were used in the study to do the IPA and thematic content analysis. To enhance objectivity of the research findings it was planned to make use of an independent coder who is an expert in qualitative research methodology. However, although interacting with people is a natural process, which forms part of humans' daily living skills, an interpretive coder or researcher needs to be competent in the application of the principles and techniques of this approach (Terre Blanche, Durrheim, & Painter, 2006). Finding an independent coder with time available and who had, or was willing to attend specific training in the moderation of focus groups and conducting one-on-one interviews proved impossible. The researcher therefore undertook this herself.

- **Searching for disconfirming evidence and competing explanations.** Results were quantitatively analysed and presented to enable unbiased evaluation.

- **Peer review and debriefing.** IPA and thematic content analysis were done from the original audio tapes by different researchers. No major discrepancies surfaced in triangulating the data, thus no further external review was done.

- **Thick and contextualised description.** Verbatim quotes from the participants were included in the study to elucidate coding and IPA classifications.

- **Researcher credibility**. No concerns in this respect surfaced during the study.

3.2.11 Ethical considerations

All ethical undertakings in the study protocol as approved by the Faculty of Health Sciences' Research Ethics Committee, University of Pretoria, were met.

The study met the ethical criteria identified by Breakwell et al. (1998, p. 29) as follows:

- **The protection and welfare of participants:** Everything possible was done to protect the participants in the research from being either physically or mentally harmed by the research process. The principle of respect for human dignity had been adhered to and no subsequent concerns in this regard surfaced.

- **The principle of informed consent:** Participants were fully informed of all aspects of the research which might have influenced their willingness to participate in the research. The position of the researcher as a lecturer at the University of Pretoria was not misused in any way and payments to the participants were limited to nominal amounts sufficient only to defray their travelling costs in order to attend interviews.

- **The use of deception:** The study did not call for any deception and till completion of the study no instances of unease were evident. There was also no indication of concerns expected to emerge after publication.

- **Debriefing of subjects:** After the data had been collected in the focus groups and one-on-one interviews participants were given an opportunity to raise any concerns or request more information in respect of the process or general nature of the study.

- **Subjects' right to withdraw from an investigation:** This was made clear to participants in the consent forms and again before all focus groups and one-on-one interviews.

- **Invasion of privacy in observational research:** All participants were made aware in advance that audio recordings were to be made of interviews and focus group sessions and also the intended use of these recordings.

- **Confidentiality and the anonymity of data:** All information obtained about participants was treated as confidential with no participant identifiable. All participants were identified through a code known only to the researcher and

all care taken to ensure no participant could be identified through the material to be published.

De Vos et al. (2005, p. 57) echoed the above but also added the following criteria pertinent to this study;

- **Competence of the researcher:** This was discussed under 3.2.10.
- **Release or publication of the findings:** To the best of the researcher's knowledge the final written report is accurate, objective, clear, unambiguous and contains all essential information without any emphasis or slanting in order to bias the results.

3.2.12 Conclusion

The process that was followed in gathering the data for the study is shown in Figure 3-4: Data gathering process.

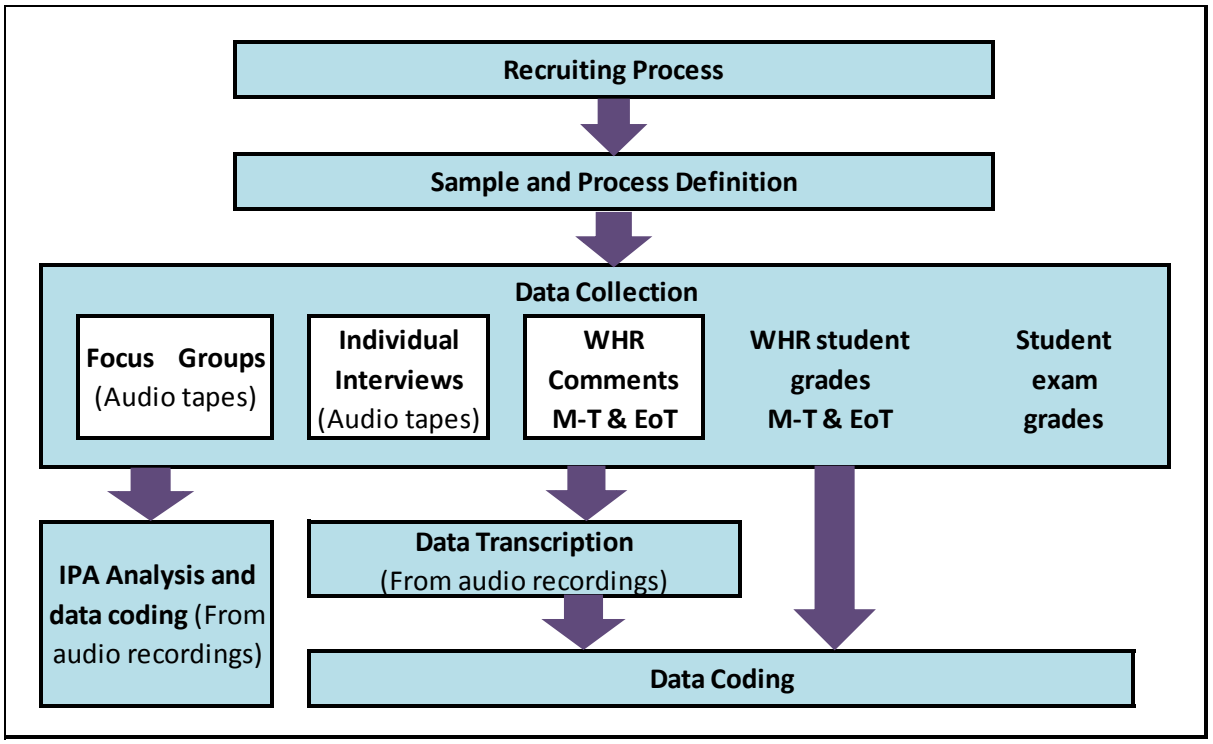

Figure 3-4: Data gathering process

CHAPTER 4

4. RESULTS AND DISCUSSION

4.1 Introduction

In this Chapter the gathered data is ordered, analysed, presented and discussed.

Reporting on the findings is as follows:

- Demographic profile of the supervisors and students in the sample:

  Demographic data of supervisors

  Demographic data of students

  Geographic placement of participants

  Demographics summary

- Grades students obtained in their practical exam for their clinical reasoning skills

- Comparison of students' grades in the practical exam with the following:

  The IPA of the supervisors.

  How the students experienced the nature of their relationship with the supervisors.

  The supervisors' feedback style as acquired through focus groups and one-on-one interviews.

  The grades students received from their supervisors for their clinical reasoning skills in the WHR.

  The comments that the students received from their supervisors in the WHR.

  Students' general academic performance.

- Triangulating for typical profiles of supervisors with high, medium and low performing students.
- Identification and discussion of the most effective supervisory profile for the fieldwork education of students.

A graphic process view of the above is given in Figure 4-1: Analysis and presentation of results.

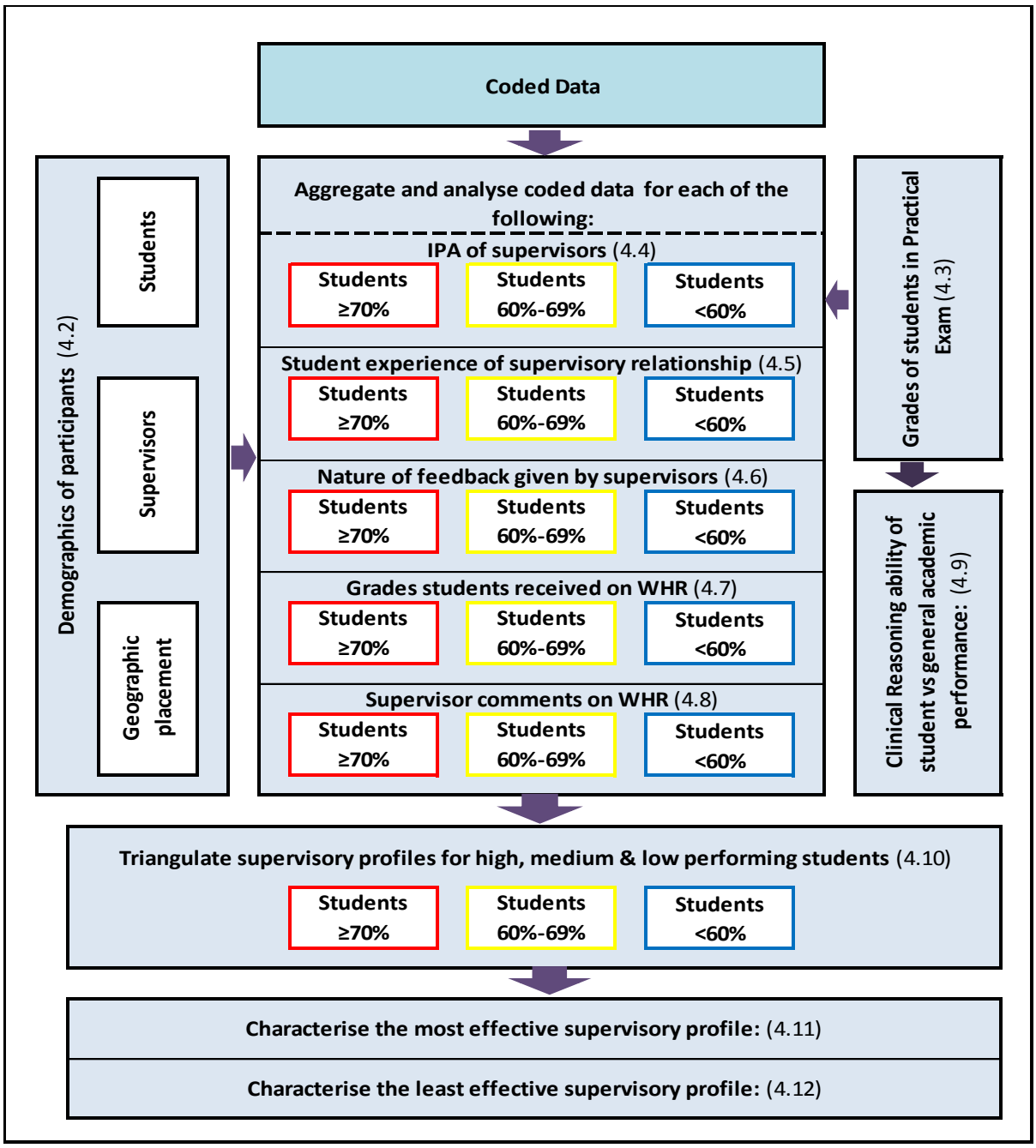

Figure 4-1: Analysis and presentation of results

4.2 Demographic profile of the supervisors and students in the sample

4.2.1 Demographic data of supervisors

Demographic information about the 19 supervisors involved in the study is set out in Table 4-1: Demographic information about the supervisors included in the study in terms of workplace, gender and distribution of race and age groups.

Table 4-1: Demographic information about the supervisors included in the study

Demographics		Frequency	Percentage
Workplace	State hospital	12	63.2%
	Private hospital	7	36.8%
Gender	Female	19	100%
Race	African	1	5%
	Asian	3	16%
	Caucasian	15	79%
Age	23-24	3	15.8%
	25-30	11	57.9%
	31-40	4	21.1%
	41-65	1	5.3%

Although all 19 supervisors from the placement hospitals were recruited for the study, only one Asian and 15 Caucasian supervisors gave their written consent to participate in the one-on-one interviews and focus groups.

All the supervisors therefore did not participate in all aspects of the study; although student feedback on all of the supervisors is available, feedback from supervisors were not available for all students and IPAs were done on only 14 of the 16 that consented. Specific participation in each element will be identified in presenting the results.

4.2.2 Demographic data of students

The class of final year students in 2007 consisted of 36 students of whom three were African. As the study already incorporated a number of variables influencing the results, it was decided to eliminate cultural differences and the participation was thus narrowed to incorporate only one racial group. Only 30 of the remaining 33 Caucasian students consented to participate in the study.

Demographic information about the 30 students who participated in the study is depicted in Table 4-2 in the same order as those of supervisors in terms of fieldwork placement, gender, race and age.

Table 4-2: Demographic information about the students included in the study

Demographics		Frequency	Percentage
Workplace	State hospital	20	66.7%
	Private hospital	10	33.3%
Gender	Female	30	100%
Race	African	0	0%
	Asian	0	0%
	Caucasian	30	100%
Age	≤23	24	80.0%
	24-26	5	16.7%
	>26	1	3.3%

4.2.3 Geographic placement of participants

As shown in Table 4-3: Geographic placement of participants, students did their practical fieldwork in one of three block periods through the year at 6 hospitals of which 2 were private and 4 state-owned.

Table 4-3: Geographic placement of participants

Student	Block	Hospital / Supervisor																	
		I					II						III		IV		V		VI	
		Private					State						St.		St.		St.		Priv.	
		O	H	X	A	G	B	Z	ZZ	Z	F	P	C	CC	D	E	L	Q	M	N
f	2						x	x		x		x								
r	3														x	x				
d	1														x	x				
ee	2	x	x																	
n	3	x	x	x																
nn	3	x	x	x																
t	3																		x	x
dd	1														x	x				
ff	2						x	x		x										
ppp	3						x	x		x		x								
b	1						x	x	x		x									
rr	3														x	x				
bbb	1						x	x	x											
aa	1	x	x		x	x														
a	1	x	x		x	x														
e	2	x		x																
cc	1												x	x						
c	1												x	x						
gg	2														x	x				
s	3																	x		
fff	2						x	x		x										
ccc	1												x	x						
cccc	1												x	x						
ss	3																	x		
h	2																x			
hh	2																x			
g	2														x	x				
tt	3																		x	x
j	2																		x	x
jj	2																		x	x

4.2.4 Demographics summary

Six hospitals, two in the private sector and four in the public sector, were used for fieldwork education.

Of the 19 supervisors who participated in this study, 12 were from state hospitals and seven from the private sector. Fifteen supervisors were white, one Asian and one African. All 19 supervisors were female. Their age groups ranged from 23 to 63 with nearly 74% being below 30.

The 30 students included in the study were all Caucasian and from the same university. Twenty were placed at state and ten at private hospitals with an average of five students per hospital. All the students were female and their ages ranged from 22 to 35 years.

4.3 Practical examination of clinical reasoning skills

The average grade obtained in the practical exam was 64.1% with a standard deviation of 7.78%.

Table 4-4: Grades obtained by the students in the practical exam

No	Student	Practical Exam
1	f	77
2	r	77
3	d	76
4	ee	73
5	n	73
6	nn	73
7	t	71
8	dd	71
9	ff	70
10	ppp	70
11	b	68
12	rr	67
13	bbb	66
14	aa	66
15	a	63
16	e	63
17	cc	62
18	c	61
19	gg	61
20	s	60
21	fff	60
22	ccc	58
23	cccc	57
24	ss	57
25	h	57
26	hh	57
27	g	55
28	tt	53
29	j	52
30	jj	48
Average		64.07

Students who obtained grades in the 70% range were regarded as innovative in their ability to reason clinically. Those who obtained grades in the 60% range were regarded as having a good comprehension of patients' problems and in applying

intervention strategies. The students whose performances were regarded as satisfactory in having insight into patients' problems and in applying intervention strategies obtained grades in the 50% range. The student whose basic insight into patients' problems was inadequate and who consequently applied deficient intervention strategies failed with a grade of 48%. The distribution of average grades obtained is considered reasonable and is shown in Figure 4-2: Frequency distribution of Practical Examination scores.

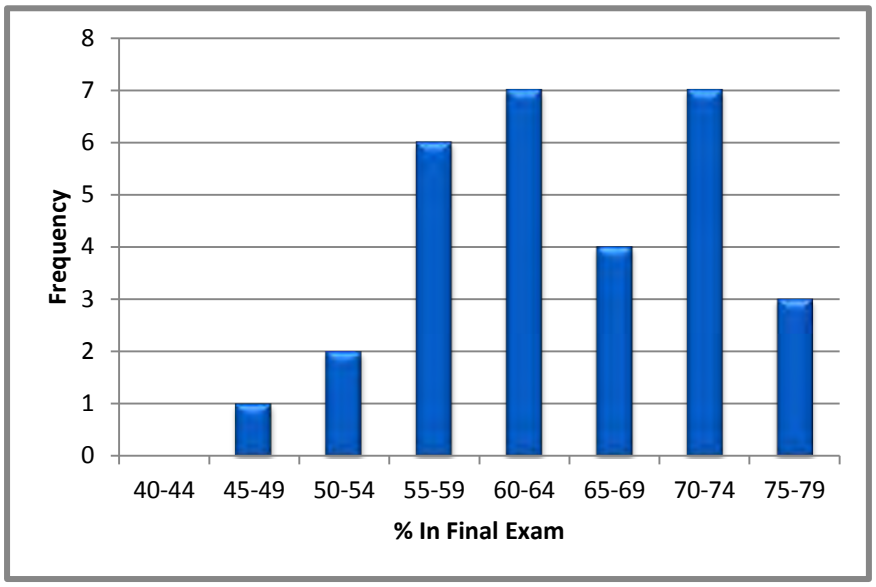

Figure 4-2: Frequency distribution of Practical Examination scores

Table 4-5: Average exam grade obtained by students in each fieldwork block shows that block 1 was close to class average, block 2 was 3.8% under class average and block 3 was 2.2% higher than class average, probably due to its proximaty to the exam.

Table 4-5: Average exam grade obtained by students in each fieldwork block

Average grade obtained in exam by students in each block		
Average exam mark of students in block 1	**64.8**	**%**
Average exam mark of students in block 2	**61**	**%**
Average exam mark of students in block 3	**67**	**%**

4.4 Interpersonal Pattern Analysis (IPA) of supervisors

Of the 16 variables of the IPA that was performed by the psychologist on those supervisors whose students obtained grades in the 70% range, five variables were identified as relevant for the study. They were the following:

- Approach in terms of being circular or linear
- Level of empathy
- Degree of interpersonal flexibility
- Problem solving skills
- Confirmation

These five variables were determined for 14 of the 16 supervisors that consented to participate in the study as shown in Table 4-6: Interpersonal Pattern Analysis of supervisors.

Table 4-6: Interpersonal Pattern Analysis of supervisors

Supervisor		O	H	X	A	G	B	F	P	C	D	E	L	M	N
Approach	Circular		x		x	x				x	x		x		
	Partial							x						x	x
	Linear	x		x			x		x			x			
Level of empathy	Emphatic		x		x	x				x			x		
	Partial							x			x			x	x
	Judgmental	x		x			x		x			x			
Degree of flexibility	Flexible		x		x	x				x	x		x		x
	Partial	x						x						x	
	Rigid			x			x		x			x			
Problem solving	Solve		x	x			x	x		x		x	x		x
	Partial				x				x		x			x	
	No	x				x									
Confirmation	Give		x		x	x			x	x	x		x		x
	Partial give							x				x			
	Limited	x		x			x							x	

Comparison of the grades obtained by students in their practical exam with the IPA of their supervisors is done by aggregating the IPA of supervisors of students in the

70% range, then for students with marks in the 60% range, followed by students with grades in the 50% range. For ease of analysis the single student that failed with 48% and the particular supervisors' IPA will be included with the last group.

4.4.1 Interpersonal Pattern Analysis of supervisors with high performing students

The five variables of the IPA performed by the psychologist on nine of the ten supervisors who played a significant role in the fieldwork education of those students who obtained grades in the 70% range and who participated in a focus group or a one-on-one interview, or both, is set out below.

Table 4-7: Interpersonal Pattern Analysis profile of supervisors with students in the 70% range

SUPERVISOR		O	H	X	B	P	D	E	M	N	Total 9	Total %
Approach	Circular		x				x				2	22%
	Partial								x	x	2	22%
	Linear	x		x	x	x		x			5	56%
Level of empathy	Emphatic		x								1	11%
	Partial						x		x	x	3	33%
	Judgmental	x		x	x	x		x			5	56%
Degree of flexibility	Flexible		x				x			x	3	33%
	Partial	x							x		2	22%
	Rigid			x	x	x		x			4	44%
Problem solving	Solve		x	x	x			x		x	5	56%
	Partial					x	x		x		3	33%
	No	x									1	11%
Confirmation	Give		x			x	x			x	4	44%
	Partial							x			1	11%
	Limited	x		x	x				x		4	44%

Table 4-7: Interpersonal Pattern Analysis profile of supervisors with students in the 70% range shows the number and percentage of therapists in the selected group exhibiting specific IPA traits. However, as students could have more than one

supervisor and supervisors multiple students, depending on the supervisors' workload and circumstances at the hospital, the actual exposure of the group of students to the individual supervisors was unequal. A weighted average IPA profile for the supervisors involved was therefore also calculated based on the exposure to the individual supervisors as actually experienced by the students. In most cases the difference in outcome was slight, but the weighted average IPA is deemed to be the more accurate of the two.

Table 4-8: Weighted average IPA profile for supervisors with students in the 70% range

IPA VARIABLE	CATEGORY	PROFILE
Approach	**Circular**	28.6%
	Partial	9.5%
	Linear	61.9%
Level of empathy	Emphatic	14.3%
	Partial	23.8%
	Judgmental	61.9%
Degree of flexibility	**Flexible**	33.3%
	Partial	19.0%
	Rigid	47.6%
Problem solving	**Solve**	57.1%
	Partial	28.6%
	No	14.3%
Confirmation	**Give**	42.9%
	Partial	14.3%
	Limited	42.9%

i. Approach

Of the nine supervisors, two (22.2%) had a circular approach, two (22.2%) were partly linear and five (55.6%) linear only. The weighted average IPA shows that of these supervisors 28.6% were circular, 9.5% partly linear and 61.9% linear.

The linear approach was described by the clinical psychologist as follows:

> *She is quick to blame* (Participant X)
>
> *Probably [linear], due to a limited ability to initiate or mobilise* (Participant O)

She seems to be opinionated, instructive, domineering and blames subtly (Participant B)

She will probably blame the environment (Participant P)

She would seemingly want things done her way (Participant E).

ii. Level of empathy

One (11.1%) of the nine supervisors showed empathy as she could identify with the students' experiences, three (33.3%) were partly empathetic and five (55.6%) were judgmental. The weighted average IPA shows that 14% of the supervisors showed empathy, 24% partly so and 62% limited empathy.

Supervisors who showed limited empathy were described by the clinical psychologist as follows:

She seems to be blaming which indicates limited empathy (Participant O)

Seemingly low, [due to her rigid point of view she will probably be judgmental] (Participant X)

Limited. She can voice an attempt of understanding which does not seem to be effective, but students may explain her as supportive out of fear of intimidation (Participant B)

[Empathy] questionable, she seems to be stuck in routine lowering the empathy (Participant P)

She would probably expect fewer problems and would not want to deal with them if they arise (Participant E).

iii. Degree of flexibility

Three (33.3%) of the nine supervisors were flexible, probably owing to their high levels of empathy, two (22.2%) fluctuated between rigidity and flexibility and four (44.4%) were rigid in their approach by wanting things done their way even to the extent of getting impatient with the students. The weighted average IPA shows that 33% of the supervisors were flexible, 19% partly flexible and 48% rigid.

Rigidity was described by the clinical psychologists as follows:

She wants her way (Participant B)

She seems to be set in her ways and routines (Participant P)

Want things her way (Participant E)

She will be more comfortable with clear structure - as she sees it (Participant X).

iv. Problem solving skills

Five (55.6%) of the nine supervisors were able to solve problems effectively, three (33.3%) did so partially and one (11.1%) was not effective. The weighted average IPA shows that supervisors were effective 57% of the time, partly so 29% and not effective 14%.

Effective problem solving skills was described by the clinical psychologist as follows:

Yes, she probably deals with problems in a calm yet structured and effective manner (Participant H)

Well- developed within her frame of reference (Participant X)

Yes, she knows what to do (Participant B)

Yes, but she can be rigid in her problem solving skills (Participant E)

Yes, her direct and firm style will probably make her quick in assessing, thought and reaction to problems. The latter will probably motivate a student to go to her for help (Participant B).

v. Confirmation

Four of the nine supervisors (44.4%) gave full confirmation on students' performance, one (11.1%) partly so and four (44.4%) supervisors gave only limited confirmation. The weighted average IPA shows that those supervisors who gave confirmation were 43%, partly 14% and limited confirmation 43%.

Confirmation and limited confirmation had the same weighting and was described by the clinical psychologist as follows:

Will give confirmation within her frame of reference, however, resistance and challenge (from the student) will probably not be accepted (Participant X)

No [limited confirmation], due to her lack of positive regard and tendency to be impatient (Participant B)

Yes, but at times she probably comes across as too direct, but her message will be clear (Participant N)

Her lack of empathy might limit giving confirmation (Participant E).

In summary, the group of students in the 70% performance range was exposed to supervisors with an aggregate IPA profile characterised by being linear rather than circular, judgmental rather than empathetic, rigid rather than flexible, good in problem solving and not prone to give confirmation. The impact of the supervisors' IPA on the high performing students is discussed in 4.11.

4.4.2 Interpersonal Pattern Analysis of supervisors with medium performing students

The five variables of the Interpersonal Pattern Analysis performed by the psychologist on the ten supervisors with students in the 60% range who participated in a focus group or a one-on-one interview, or both, are set out below.

Table 4-9: IPA profile of supervisors with students in the 60% range shows the number and percentage of therapists in the selected group exhibiting specific IPA traits. However, as students could have more than one supervisor and supervisors multiple students, depending on the supervisors' workload and circumstances at the hospital, the actual exposure of the group of students to the individual supervisors was unequal.

Table 4-9: IPA profile of supervisors with students in the 60% range

Supervisor		O	H	X	A	G	B	F	C	D	E	Total 10	Total %
Approach	Circular		x		x	x			x	x		5	50%
	Partial							x				1	10%
	Linear	x		x			x				x	4	40%
Level of empathy	Emphatic		x		x	x			x			4	40%
	Partial							x		x		2	20%
	Judgmental	x		x			x				x	4	40%
Degree of flexibility	Flexible		x		x	x			x	x		5	50%
	Partial	x						x				2	20%
	Rigid			x			x				x	3	30%
Problem solving	Solve		x	x			x	x	x		x	6	60%
	Partial				x					x		2	20%
	None	x				x						2	20%
Confirmation	Give		x		x	x			x	x		5	50%
	Partial							x			x	2	20%
	Limited	x		x			x					3	30%

A weighted average IPA profile for the supervisors involved was therefore also calculated based on the exposure to the individual supervisors as actually experienced by the students.

Table 4-10: Weighted IPA profile for supervisors with students in the 60% range

IPA VARIABLE	CATEGORY	PROFILE
Approach	Circular	50.0%
	Partial	5.0%
	Linear	45.0%
Level of empathy	Emphatic	40.0%
	Partial	15.0%
	Judgmental	45.0%
Degree of flexibility	Flexible	50.0%
	Partial	20.0%
	Rigid	30.0%
Problem solving	Solve	55.0%
	Partial	20.0%
	None	25.0%
Confirmation	Give	50.0%
	Partial give	15.0%
	Limited	35.0%

i. Approach

Of the ten supervisors five (50%) had a circular approach, one (10%) was partly linear and four (40%) approached students in a linear way. The weighted average IPA of supervisors shows that 50% were circular, 5% partly linear and 45% linear.

The circular approach was described by the clinical psychologist as follows:

> *She is aware of her impact on others* (Participant H)
>
> *She acknowledges her own input to a situation but might exhibit uncertainty and feeling sorry for students* (Participant A)
>
> *Her low level of assertiveness and feeling of incompetence would not allow her to be linear* (Participant G)
>
> *Yes, she identifies accurately with the students' experiences* (Participant C)
>
> *Yes, she will probably take feedback and implement it* (Participant D).

ii. Level of empathy

Four (40%) of the ten supervisors showed empathy, two (20%) were partly empathetic and four (40%) showed limited empathy and were judgmental. The weighted average IPA of supervisors showed that 40% were empathetic, 15% partly empathetic and 45% showed limited empathy.

Supervisors who showed empathy were described by the clinical psychologist as follows:

> *Her understanding of the contexts is clear and comprehensive* (Participant H)
>
> *She can place herself in the position of the student but tends to be sympathetic (Participant A)*
>
> *Yes, too much bordering on sympathy* (Participant G)
>
> *Yes, her understanding of the students' position and frustration is clear and comprehensive* (Participant C).

iii. Degree of flexibility

Five (50%) of the ten supervisors were flexible, probably owing to their high levels of empathy, two (20%) fluctuated between rigidity and flexibility and three (30%) were rigid in their approach by wanting things done their way even to the extent of getting impatient with the students. The weighted average IPA shows that 50% of supervisors were flexible, 20% partly flexible and 30% rigid.

Supervisors who were flexible were described by the clinical psychologist as follows:

> *She is flexible because of her awareness and empathy* (Participant H)
>
> *Her poor self-confidence as well as the fact that she does not want to upset the students [especially in giving feedback to them]* (Participant A)
>
> *Due to her lack of self-confidence she would be flexible and thus not able to take a stand* (Participant G)
>
> *Yes, due to her awareness of what students go through she adjusts her approach to them* (Participant C)
>
> *Yes, she understands others' frustrations and will probably see the effect of her own behaviour* (Participant D).

iv. Problem solving skills

Six (60%) of the ten supervisors were able to solve problems effectively, two (20%) did so partly and two (20%) were not effective. The weighted average IPA shows that 55% of supervisors were effective, 20% partly so and 25% not effective.

Supervisors with effective problem solving skills were described by the clinical psychologist as follows:

> *Yes, she probable deals with problems in a calm and effective manner* (Participant H)
>
> *Well-developed within her frame of reference* (Participant X)
>
> *Yes, she knows what to do* (Participant B)
>
> *Yes she knows what to do but her ability to communicate these skills can sometimes be limited* (Participant F)
>
> *Yes, she probably deals with problems in a calm yet effective manner* (Participant C)
>
> *Yes, but she can be rigid in her problem solving skills* (Participant D).

v. Confirmation

Five of the ten supervisors (50%) gave confirmation to students, two (20%) partially so and three (30%) supervisors gave limited confirmation. The weighted average IPA shows that 50% of supervisors gave confirmation, 15% partial confirmation and 35% limited confirmation.

Confirmation was described by the clinical psychologist as follows:

> *She is direct in her feedback* (Participant B)
>
> *Communicates her understanding* (Participant H)
>
> *She gives confirmation since she identifies with the difficulty of the situation* (Participant A).

In summary, students in the 60% performance range were exposed to supervisors with an aggregate IPA profile characterised by being equally linear and circular, equally judgmental and emphatic, more flexible than rigid, fairly good at solving problems and tending to give confirmation.

4.4.3 Interpersonal Pattern Analysis of supervisors with low performing students

The five variables of the IPA performed by the psychologist on six of the eight supervisors who played a significant role in the fieldwork education of those students who obtained grades in the 50% range and who participated in a focus group or a one-on-one interview, or both, is set out below. Table 4-11: Interpersonal Pattern Analysis profiles of supervisors with students in the 50% range, shows the number and percentage of therapists in the selected group exhibiting specific IPA traits.

Table 4-11: Interpersonal Pattern Analysis profiles of supervisors with students in the 50% range

SUPERVISOR		C	D	E	L	M	N	Total 6	%
Approach	Circular	x	x		x			3	50%
	Partial					x	x	2	33%
	Linear			x				1	17%
Level of empathy	Emphatic	x			x			2	33%
	Partial		x			x	x	3	50%
	Judgmental			x				1	17%
Degree of flexibility	Flexible	x	x		x		x	4	67%
	Partial					x		1	17%
	Rigid			x				1	17%
Problem solving	Solve	x		x	x		x	4	67%
	Partial		x			x		2	33%
	None								
Confirmation	Give	x	x		x		x	4	67%
	Partial			x				1	17%
	Limited					x		1	17%

Table 4-12: Weighted average Interpersonal Personal Analysis profile of supervisors with students in the 50% range

IPA VARIABLE	CATEGORY	PROFILE
Approach	Circular	41.7%
	Partial	50.0%
	Linear	8.3%
Level of empathy	Emphatic	33.3%
	Partial	58.3%
	Judgmental	8.3%
Degree of flexibility	Flexible	66.7%
	Partial	25.0%
	Rigid	8.3%
Problem solving	Solve	66.7%
	Partial	33.3%
	None	-
Confirmation	Give	66.7%
	Partial	8.3%
	Limited	25.0%

As students could have more than one supervisor and supervisors have multiple students, depending on the supervisors' workload and circumstances at the hospital, the actual exposure of the group of students to the individual supervisors was unequal. A weighted average IPA profile for the supervisors involved was therefore also calculated based on the exposure to the individual supervisors as actually experienced by the students. In most cases the difference in outcome was slight, but the weighted average IPA is deemed to be the more accurate of the two.

i. Approach

Of the six supervisors three (50%) had a circular approach, two (33%) were partly linear and only one (17%) approached students in a linear way. The weighted average IPA shows that 42% of supervisors were circular, 50% partly linear and 8% linear in their approach.

The circular approach was described by the clinical psychologist as follows:

> *She identifies accurately with students' experiences* (Participant C)
>
> *She identifies accurately with the students' experiences, and takes responsibility for her own impact on situations* (Participant L)
>
> *She is aware of her input* (Participant D).

ii. Level of empathy

Two (33 %) of the six supervisors showed empathy, three (50%) showed partial empathy and one (17%) showed limited empathy and was judgmental. The weighted average IPA of supervisors shows that 33.3% showed empathy, 58.3% partial empathy and 8.3% limited empathy.

Supervisors who showed partial empathy were described by the clinical psychologist as follows:

> *Partially, she tends to blame and be limited in understanding, but not to a high degree* (Participant D)
>
> *Her tendency to be uncertain can limit her empathy* (Participant M)

Fluctuating, but more on the constructive side. She will probably describe herself as empathetic, however her directness and professional clear presentation can be harsh at times (Participant N).

iii. Degree of flexibility

Four (66.7%) of the six supervisors were flexible, probably owing to their high levels of empathy, one (16.7%) fluctuated between rigidity and flexibility and one (16.7%) was rigid in her approach by wanting things done her way even to the extent of getting impatient with the students. The weighted average IPA of supervisors shows that 66.7% were flexible, 25% partly flexible and 8.3% rigid.

Flexible because she is aware of what students go through (Participant C)

Due to her awareness of what the students go through she adjusts her approach to them (Participant L)

She adjusts her approach according to the students' needs (Participant D)

Flexible but professionally so (Participant N).

iv. Problem solving skills

Four (66.7%) of the six supervisors were able to solve problems effectively, two (33.3%) did so partly. The weighted average IPA shows that supervisors who were effective were 66.7% and partly so 33.3%.

Problem solving skills was described by the clinical psychologist as follows:

Yes, she probably deals with problems in a calm yet effective manner (Participant C)

Yes, she probably deals with problems in a calm yet effective manner (Participant L)

Yes, but she can be rigid in her problem-solving skills (Participant E)

Yes, her direct and firm style will probably make her quick in assessing thought and reacting to problems. The latter will probably motivate a student to go to her for help. (Participant N).

v. Confirmation

Four of the six supervisors (66.7%) gave confirmation to students, one partially so (16.7%) and one (16.7%) supervisor gave only limited confirmation. The weighted average IPA shows that supervisors who gave confirmation were 66.7%, partly 8.3% and limited confirmation 25%.

Confirmation was described by the clinical psychologist as follows:

> *She identifies with the students' position* (Participant C)
>
> *Yes, but direct confrontation seems to make her uncomfortable* (Participant D)
>
> *She identifies with others and can communicate it* (Participant L)
>
> *She may sometimes be too direct, coming over too strong* (Participant N).

In summary, students in the 50% performance range were exposed to supervisors with an aggregate IPA profile characterised by being more circular than linear, emphatic, flexible and effective in solving problems and high in giving confirmation.

The impact of the supervisors' IPA on the low performing students is discussed in 4.12.

4.4.4 Summary of the Interpersonal Pattern Analysis of supervisors

The information on five supervisor IPA variables aggregated for three levels of student performance is summarised in Figure 4-3: Summary of supervisor IPA variables for 3 levels of student performanceTo facilitate comparison of the differences between the average supervisor IPA profiles for the three levels of student performance, a simplified graphic presentation is given in Figure 4-4: Graphic presentation of supervisor IPA variables for 3 levels of student performance

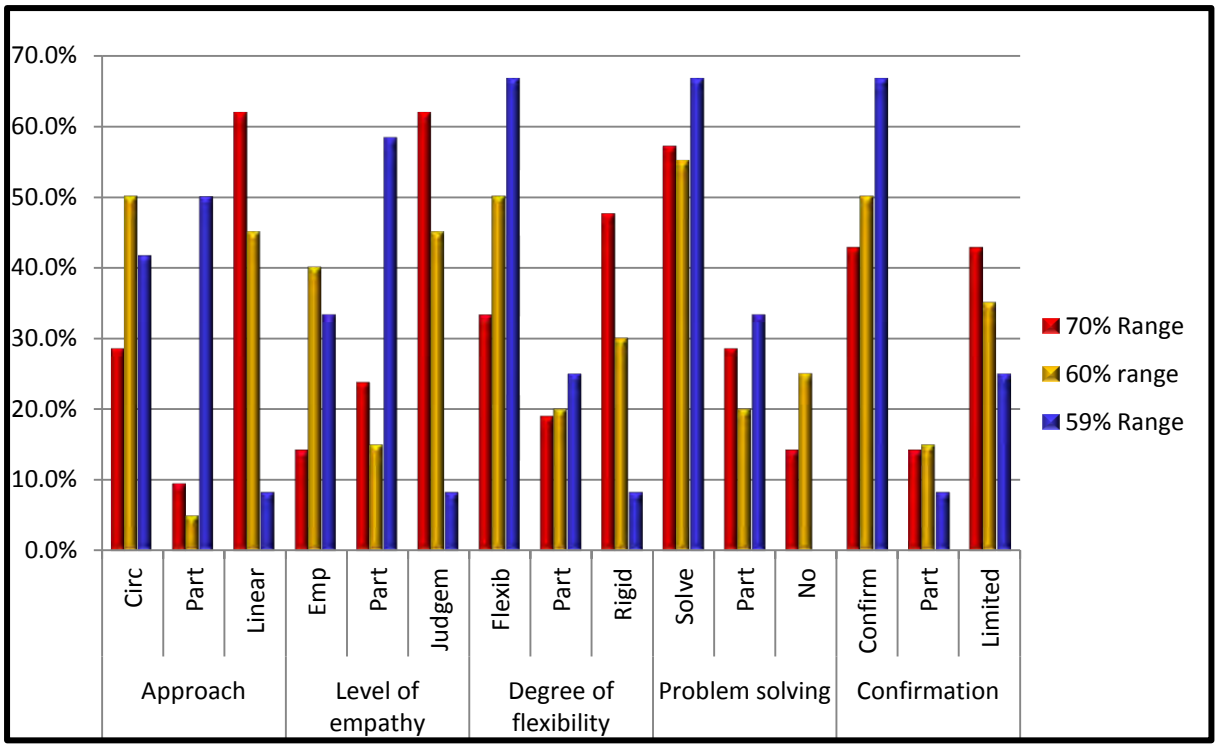

Figure 4-3: Summary of supervisor IPA variables for 3 levels of student performance

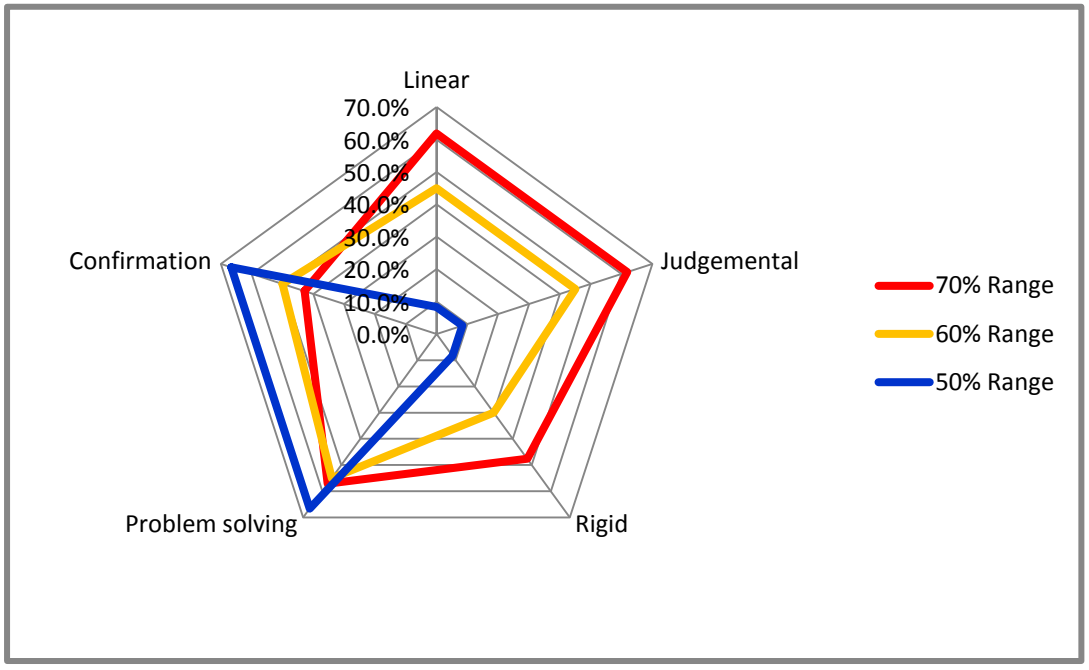

Figure 4-4: Graphic presentation of supervisor IPA variables for 3 levels of student performance

4.5 Students' experience of the nature of their relationship with supervisors

Two independent analyses were performed on the student responses as gleaned from the focus groups and one-on-one interviews.

In the first, three major themes emerged from the content analysis of students' responses about their experience of the supervisors' interpersonal communication:

- The supervisor's style of communication expressed in terms of being more authoritarian (domineering) or more laissez-faire (lenient)
- How the supervisor's interpersonal communication style presented itself in terms of behaviour

  The corrective feedback given by the supervisor

  The positive feedback given by the supervisor

  The supervisor's demeanour as polite or unpleasant

  The supervisor's approachability
- Effect of the supervisor's interpersonal communication on the student

  The student's learning experience (the transfer of knowledge and skill which determines whether the student learned about clinical reasoning)

  The students' respect for the supervisors in terms of perceiving them as authoritative (in having a lot of knowledge).

Learning from the supervisor and respect for the supervisor should not be seen simplistically as being only the effect of the supervisors' style and behaviour on the student. There is an added layer of complexity or dimension to both. Learning is also affected by the supervisors' teaching ability and respect is influenced by the student's perception of the supervisor as being knowledgeable and therefore worth listening to and emulating. Both learning and respect are therefore included in this

broader sense incorporating also the supervisor's perceived ability in addition to her conduct in the analysis of the student's views.

The impact of the supervisors' authority and interpersonal communication on the students is depicted in the Table below.

Table 4-13: Students' perception of supervisors' competency and interpersonal communication and its impact on their clinical reasoning skills

Theme	Supervisors' authority and interpersonal communication	Impact of supervisors' competency and interpersonal communication on the students
Learning	Imparted high-quality information	Students **learned form supervisors**
	Imparted limited information	**Limited learning** from supervisors
Respect	**Authoritative** – supervisors have a lot of knowledge about occupational therapy	Student respected supervisors
	Limited authority – supervisors did not demonstrate their knowledge	Lost most of their respect for supervisors
Style	**Authoritarian** (rigid, strict, domineering)	Students felt apprehensive, anxious and angry
	Laissez-faire (flexible, lenient)	Students felt as ease and relaxed
Feedback - corrective	Gave **corrective feedback**	Although students experienced learning process as stressful, effective learning was facilitated
	Gave **limited corrective feedback**	Limited learning took place
Feedback - positive	Gave **positive feedback**	Motivated students
	Gave **limited positive feedback**	Demotivated students
Demeanour	**Polite demeanour**	Students felt accepted
	Unpleasant	Students felt humiliated
Approachability	**Approachable** (Open)	Felt at ease to approach supervisor
	Unapproachable (Distant)	Students avoided supervisor

A second independent analysis was done in order to ensure that nothing was inadvertently omitted. This analysis, at a high level not suitable for later quantification, yielded the following themes and sub-themes.

- **Clinical reasoning**

  Guidance

  Evaluation

  Feedback

- **Other**

  Availability

  Structure

- **Interpersonal relationships with the students**

  Support empathy

  Trust

  Consistency

  Acceptance

In a critical analysis of the above it was felt that although the approach and emphasis were different in some aspects, no major new element emerged to warrant changing the themes and sub-themes given in Table 4-13 which will now be used in the analysis.

4.5.1 The nature of their relationship with supervisors as experienced by high performing students

Table 4-14: Nature of relationship with supervisor as experienced by students in 70% range

Theme	Category	Rating
Learning	Learned from supervisor	71%
	Limited learning	29%
Respect	Authoritative	75%
	Limited authoritative	25%
Style	Authoritarian	94%
	Laissez-faire	6%
Feedback corrective	Corrective feedback	92%
	Limited correction	8%
Feedback positive	Positive feedback	19%
	Limited positive feedback	81%
Demeanour	Polite demeanour	88%
	Unpleasant	13%
Approachability	Approachable	71%
	Distant	29%

Ten students obtained marks in the 70% range. Of the 10 students data of only nine were captured and analysed. One student's data was lost during the recording process. In total 11 supervisors interacted with students in the 70% range.

Aggregated results of the nine students who obtained marks in the 70% range and their perception of the nature of the relationship with their eleven supervisors are shown in Table 4-14: Nature of relationship with supervisor as experienced by students in 70% range.

These percentages are based on direct observations, comments and perceptions gleaned from the students in one-on-one interviews and focus groups. The salient points and some of the more articulated responses to clarify the ratings are given below.

i. Learning

The students in the group felt they learned from 71% of their supervisors. This is a fairly high percentage and based on comments such as the following:

> *"The therapist helped me a lot to see ... especially with the specificity of my targets and my grading ... I made a lot of progress with that patient"* (Participant ff).

> *"Sy het nogal met jou gesit en elke dingetjie bespreek. Hoekom jy dit doen…. Dit het baie gehelp."* (Participant f) [She would discuss everything with you. Why you did it … that helped a lot]

> *"As ek 'n sessie gedoen het dan was sy daarso…..sy het vir my baie gewys…"* (Participant ppp) [When I did a session she was present … she showed me a lot]

> *"Ek het baie geleer by haar"* (Participant f) [I learned a lot from her].

ii. Respect

Seventy five percent (75%) of supervisors were deemed to be authoritative and deserving of respect. Again a high percentage supported by comments such as the following:

> *"Sy het baie kennis om te deel"* (Participant nn) [she has a lot of knowledge to share].

iii. Style

Ninety four percent (94%) of the supervisors were experienced as being authoritarian and described by some students as follows:

> *"Toe moes ons elke dag notatjies ingee van wanneer ons watse pasiënt sien sodat ons opgecheck kan word"* (Participant nn). […then we had to submit notes every day to indicate when and which patient we see so that they could check up on us]

> *"Daar is net vir ons gesê hierdie is verkeerd… maak dit reg"* (Participant r). [They just said to us this is wrong … correct it].

iv. Feedback

Ninety two percent (92%) of supervisors were seen as giving corrective feedback while only 19% gave positive feedback. There was some overlapping in that the

same supervisor could give both depending on circumstances. Typical comments included the following:

> *" …if you hand your things in and they mark all the negative things … and then there are a lot of things that are right, but they don't say it is right, they just say what is wrong, and they don't say good if your thing is right … and just once or twice I had a good and it was … wow … it was such a nice feeling."* (Participant d)

> *"uhm … ek dink tog die kritiek wat 'n mens kry … uhm is ook positief … dat 'n mens daaruit kan leer … Hulle het oor die sessiemikpunte baie kritiek gegee … maar op die ou einde … uit daai terugvoer wat ek gekry het weet ek nou vir die eerste keer regtig hoe om dit te doen."*(Participant r) [uhm … I think the critical feedback that one gets … uhm … is also positive … in that a person could learn from it … they gave a lot of criticism about our session targets … however… in the end for the first time I really know how to do it]

> *"… ons kry al hierdie negatiewe terugvoer maar daar word nie een keer regtig vir ons gesê jy het nou regtig "effort" ingesit nie."* (Participant f) […we get all these negative feedback and not once did they say that you really put effort into (something)].

v. Demeanour

Most supervisors (88%) were experienced as being polite in their dealings with the students.

> *"… hulle was nie lelik nie…hulle het my nie laat dom voel nie."* (Participant r) [… they were not nasty … they did not make me feel stupid].

> *"Ek dink hulle het die terugvoer sover as moontlik mooi probeer hanteer."* (Participant f) [I think they tried to handle the feedback as far as possible in a polite way].

> *"Ek het die terugvoer baie positief ervaar. Die manier wat hulle dit gegee het ... het ek gevoel dit is OK."* (Participant ppp) [I experienced the feedback as positive. The way that they gave the feedback had been … I felt it was OK].

vi. Approachability

Seventy one percent (71%) of the supervisors were seen as open and approachable by their students.

"… sy het geluister wat ek gesê het ... sy was oop vir idees (Participant ppp) [… she listened to what I had to say … she was open to ideas]

"You needn't make an appointment to see them. One of them would listen." (Participant ff)

"It was a professional relationship we are not a pain, we are not in the way, we were not an inconvenience" (Participant ff).

The high performing students' experience of the supervisors' interpersonal communication is discussed in 4.11.

4.5.2 The nature of their relationship with supervisors as experienced by medium performing students

Eleven students obtained marks in the 60% range. Of the eleven students only the data of ten were captured and analysed. One student's data was not available. In total fifteen supervisors interacted with students in the 60% range.

Aggregated results of the ten students in this group and their perception of the nature of the relationship with their fifteen supervisors are shown in Table 4-15: Nature of relationship with supervisor as experienced by students in the 60% range.

The salient points and some of the more relevant responses to elucidate the ratings based on direct observations, comments and perceptions gleaned from the students in one-on-one interviews and focus groups is shown below.

Table 4-15: Nature of relationship with supervisor as experienced by students in the 60% range

Theme	Category	Rating
Learning	Learned from supervisor	50%
	Limited learning	50%
Respect	Authoritative	69%
	Limited authoritative	31%
Style	Authoritarian	71%
	Laissez-faire	29%
Feedback Corrective	Corrective feedback	88%
	Limited correction	12%
Feedback Positive	Positive feedback	27%
	Limited positive	73%
Demeanour	Polite demeanour	73%
	Unpleasant	27%
Approachability	Approachable	62%
	Distant	38%

i. Learning

The students in the group felt they learned from 50% of their supervisors. This is based on comments such as the following;

> *"I mean it is very nice to say blah … I am creative whatever, but it is not really constructive in, in the sense of why I am there… so I would have preferred more, even if it there was not any positive feedback, on my skill or my theory or my application or whatever … I would have liked them to focus more on that as a therapist as a whole …"* (Participant bbb).

ii. Respect

Sixty nine percent (69%) of supervisors were deemed to be authoritative and deserving of respect.

> *"…as jy kyk wat sy doen dan kan jy sien sy weet wat sy doen … sy doen dit met jare se kennis."* (Participant a) [… if you observe what she is doing then you know she knows what she is doing … she does it with years of experience]

iii. Style

Seventy one percent (71%) of the supervisors were experienced as having an authoritarian style and were described as follows:

> *"… if you don't know exactly what is expected from you, so you could fit in with how everybody is working, then you are not going to work like they want you to, so the expectations have to be laid out from the beginning, otherwise you are not going to ever get positive feedback from these people … it is not possible"* (Participant aa).

iv. Feedback

Eighty eight percent (88%) of supervisors were seen as giving corrective feedback while 27% gave positive feedback. There was some overlapping in that the same supervisor could give both depending on circumstances.

> *"I found like … if you are going to give feedback, it shouldn't be to break a person down … it shouldn't be totally negative all the time, I found positive feedback helps as well. And even if it is like critical feedback to help you, maybe give an alternative together with it … or you know like a cue, a different method of doing something …"* (Participant aa).

> *"The … the criticism or feedback that I got was very constructive and very helpful … and I appreciated that"* (Participant bbb).

v. Demeanour

Seventy three percent (73%) of the supervisors were experienced as being polite in their dealings with the students.

> *"Terugvoer was op 'n ordentlike manier hanteer."* (Participant a). [Feedback was handled in a decent manner].

vi. Approachability

Sixty two percent (62%) of the supervisors were seen as open and approachable by their students.

> *"I must say the therapist helped a lot with debriefing and stuff …"* (Participant b).

The medium performing students' experience of the supervisors' interpersonal communication is a mix between the high performing and low performing students.

4.5.3 The nature of their relationship with supervisors as experienced by low performing students

Nine students obtained marks in the 50% range. Of the nine, only eight students' data were captured and analysed. One student's data was not available. In total eight supervisors interacted with students in the 50% range.

Table 4-16: Nature of relationship with supervisor as experienced by students in the 50% range

Theme	Category	Rating
Learning	Learned from supervisor	23%
	Limited Learning	77%
Respect	Authoritative	17%
	Limited authoritative	83%
Style	Authoritarian	8%
	Laissez-faire	92%
Feedback Corrective	Corrective feedback	27%
	Limited correction	73%
Feedback Positive	Positive feedback	92%
	Limited positive feedback	8%
Demeanour	Polite demeanour	92%
	Unpleasant	8%
Approachability	Approachable	92%
	Distant	8%

Aggregated results of the eight students in this group and their perception of the nature of the relationship with their fifteen supervisors are shown in Table 4-16: Nature of relationship with supervisor as experienced by students in the 50% range.

The salient points and some of the more relevant responses to elucidate the ratings based on direct observations, comments and perceptions gleaned from the students in focus groups and one-on-one interviews are given below.

i. Learning

The students in the group experienced limited learning from 77% of their supervisors. This is based on comments such as the following:

> *"… I didn't find that they actually … I actually did expect to get more supervision from the therapists there… I expected more input from the therapist …"* (Participant j).

ii. Respect

Eighty three percent (83%) of supervisors were deemed to be limited in terms of being authoritative and consequently not really respected.

> *"… I didn't find that they actually … I actually did expect to get more supervision from the therapists there… I expected more input from the therapist …"* (Participant j).

> *"… ons het baie goed in die department in plek gesit wat nie in plek was nie"* (Participant h) [... we put lots in the Department in place that weren't in place].

iii. Style

Ninety two percent (92%) of the supervisors were experienced as being laissez-faire in their style and were described as follows:

> *"They didn't treat us like students they let us be independent … and, they were very, very nice … very helpful."* (Participant jj)

> *"Ek het haar meer as 'n vriendin gesien … ons kon oor ander goed praat as net die werk."* (Participant h) [I saw her more as a friend .... we could discuss other things than work only].

> *"Ek dink dit het mens nogal baie geleer deur verantwoordelikheid en ook dit het gevoel asof ons inpas en nie net studente is nie ... so dit het gevoel asof ons nie net hierdie studente is nie, maar asof ons deel is daarvan ..."* (Participant ccc) [I think it taught one quite a lot through responsibility and we felt that we fitted in and not mere students]

> *"… in the end they told us … they could see us like therapists as well, we were even working as therapists"* (comment was also applicable to Participants ccc and cccc).

iv. Feedback

Seventy three percent (73%) of supervisors were seen as giving limited corrective feedback while 92% gave positive feedback. There was some overlapping in that the same supervisor could give both depending on circumstances.

> *" … I think I wanted more … because we said we wanted feedback so we know what we are doing wrong … I think the feedback was coming at the end instead of every day or weekly … it was given right at the end … I didn't get what I needed."* (Participant j)

> *"… uhm as sy vir ons, ons mid-terms of ons 'feedback' gegee het, was dit goed maar ek dink dit kon beter gewees het, want … ek sou graag hulle 'input' wou gehad het …"* (Participant tt) [When she gave us our mid-term or other feedback, it was good but I think it could have been better as I would have liked to get their input]

> *" …dit is lekker om goeie punte te kry maar ek het net gewonder hoe "reliable" is die punte wat ek kry"* (Participant h) [it is nice to get good grades but I just wondered how reliable were the grades I received].

v. Demeanour

Ninety two percent (92%) of the supervisors were experienced as being polite in their dealings with the students.

> *"Die terapeute was so motiverend gewees … dit was lekker."* (Participant hh) [the therapists were so motivating … it was nice]

> *"... as ek nie iets reg gedoen het nie dan het hulle dit op 'n mooi manier gesê*... die *terapeute het baie vir ons, hulle het mooi met ons gepraat*." *(Participant ccc) [When I did something wrong then they said so in a very nice way … the therapists spoke nicely with us].*

vi. Approachability

Ninety two percent (92%) of the supervisors were seen as open and approachable by their students.

> *"The therapists that were with us were very, very approachable. We were not scared to ask them for help or for guidance or for something like that …they realised that we are students* (Participant jj) *and yet they didn't treat us like students."* (Participant j)

> *"Die terapeute by ons was baie oop, weet jy kon … net na hulle toe gaan en vra en raad kry en ek dink ook, soos nie net oor die werk praat nie, wat die interpersoonlike verhouding so half versterk …"* (Participant hh) [The therapists were very open, you could just go to them and ask and get advice and also not just discussing the work, which strengthened the interpersonal relationship somewhat].

The low performing students' experience of the supervisors' interpersonal communication is discussed in 4.12.

4.5.4 Summary

The three groups of students and the perception they had of their supervisors' interpersonal communication can be summarised as shown in Figure 4-5: Summary of students' experience of the interpersonal communication of their fieldwork supervisors.

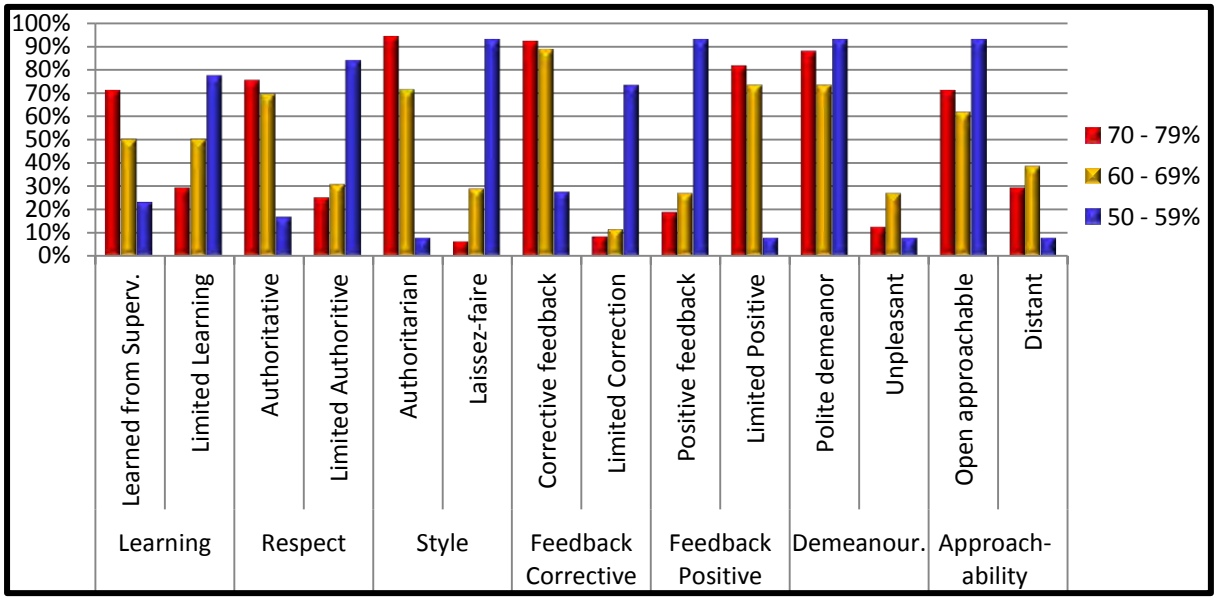

Figure 4-5: Summary of students' experience of the interpersonal communication of their fieldwork supervisors

To facilitate comparison of the differences between the students perception of the interpersonal communication with their supervisors at the three levels of student performance, a simplified graphic presentation is given in Figure 4-6: Graphic

presentation of the student's relationship with their supervisors for 3 levels of performance

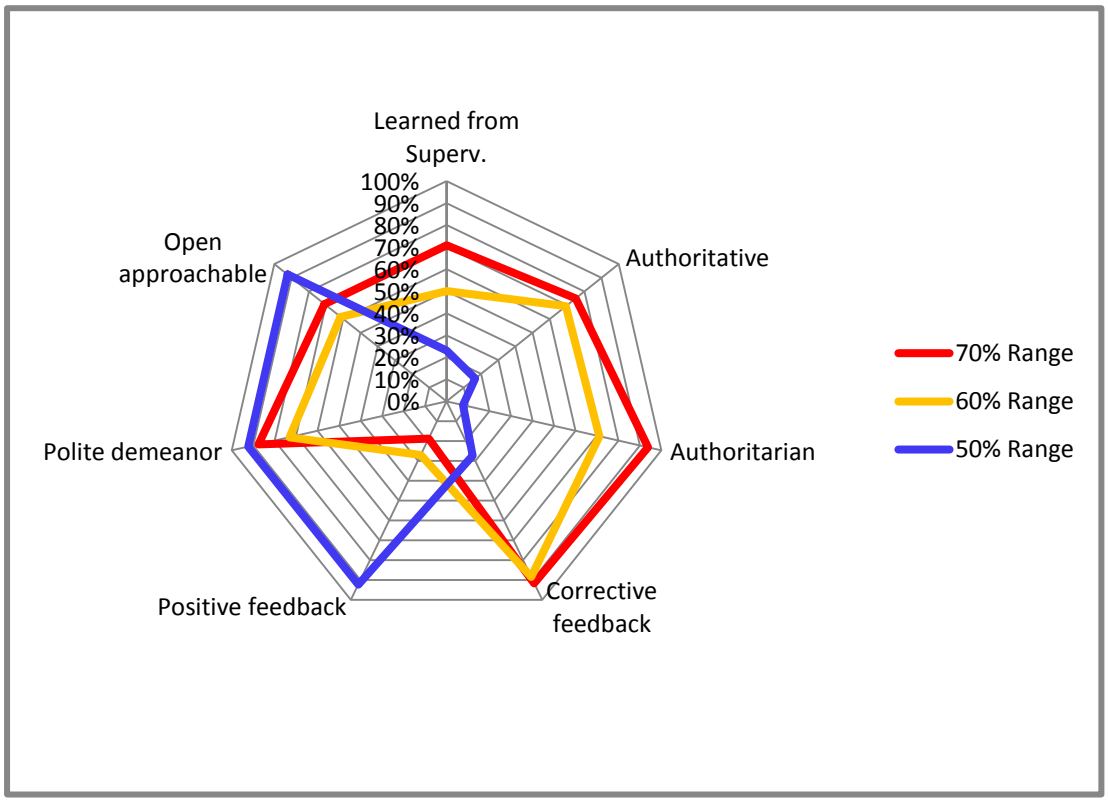

Figure 4-6: Graphic presentation of the student's relationship with their supervisors for 3 levels of performance

The nature of interpersonal communication with individual supervisors, as experienced by all students, is given on a weighted average basis in Figure 4-7: Summary of the nature of interpersonal communication with individual supervisors as experienced by all students.

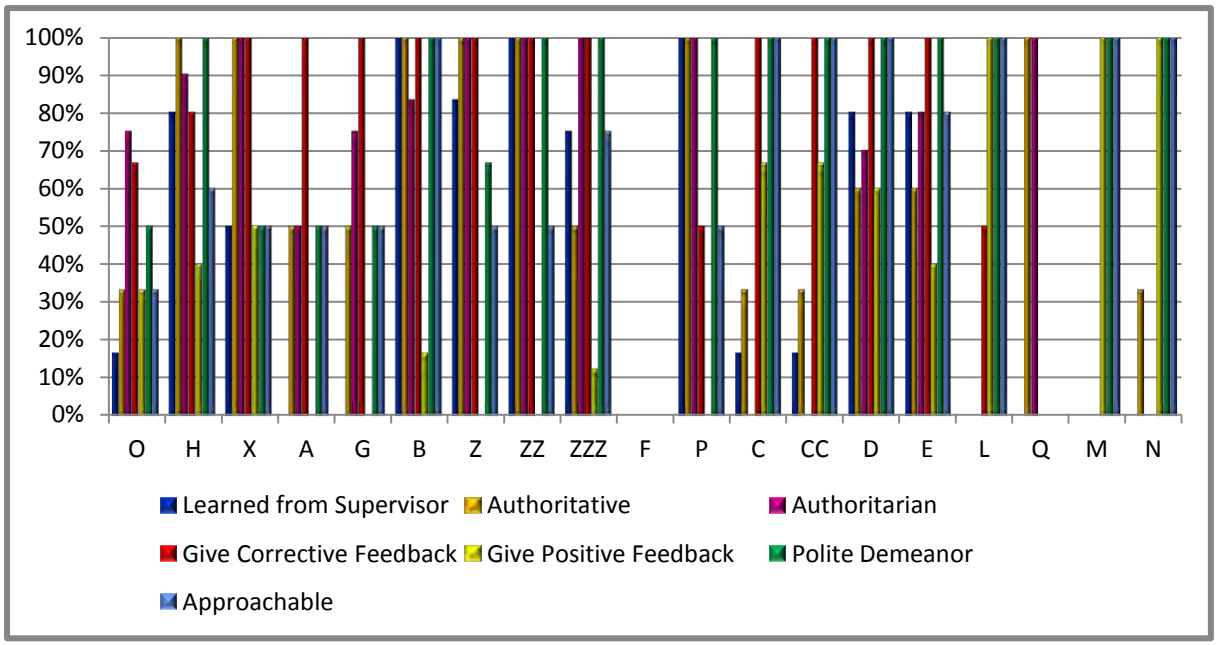

Figure 4-7: Summary of the nature of interpersonal communication with individual supervisors as experienced by all students

A score of 100% would indicate that all students who expressed an opinion rated this supervisor the same on a particular point.

4.6 Nature of feedback given by supervisors based on focus groups and one-on-one interviews

The information in this section was gleaned from one-on-one interviews and only one aspect of the supervisors' relationships with the students evaluated, i.e. whether the supervisor would tend to be more recommending or more commanding in her communication with the student. The results for individual supervisors are shown in Figure 4-8: Nature of supervisors' relationships with students based on focus groups and interviews with supervisors.

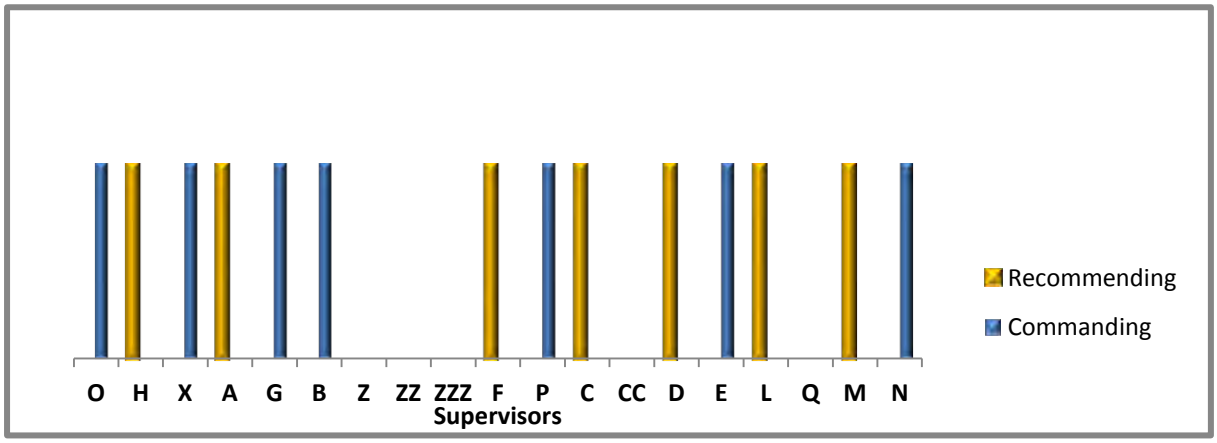

Figure 4-8: Nature of supervisors' relationships with students based on focus groups and interviews with supervisors

As some supervisors had contact with more students than others, the results were weighted to reflect the effect on the three groups of students for easy comparison with other findings. This is shown in Table 4-17: Weighted nature of supervisors' relationships with students from focus groups and one-on-one interviews. The nature of supervisors' relationship with students based on the focus groups and one-on-one interviews is discussed in 4.11 and 4.12.

Table 4-17: Weighted nature of supervisors' relationships with students from focus groups and one-on-one interviews

Data weighted for:	Supervisors	
	Recommending	Commanding
Students in 70% range	32%	68%
Students in 60% range	45%	55%
Students in 50% range	64%	36%
Total	43%	57%

4.7 Grades students received for their clinical reasoning skills from their supervisors on the Work Habits Report

The students were rated twice in terms of their clinical reasoning skills by their supervisors during their practical training at M-T and again at the EoT.

Table 4-18: Students' practical exam grades compared with grades received from supervisors

Student	Exam grade	Mid-Term grade	End of Term grade
f	77	58	65
r	77	50	65
d	76	55	63
ee	73	55	75
n	73	63	75
nn	73	63	55
t	71	65	75
dd	71	60	70
ff	70	50	70
ppp	70	65	70
b	68	53	70
rr	67	73	60
bbb	66	58	68
aa	66	55	65
a	63	55	65
e	63	50	70
cc	62	60	78
c	61	68	80
gg	61	45	50
s	60	68	80
fff	60	50	60
ccc	58	68	80
cccc	57	60	75
ss	57	60	80
h	57	nr	88
hh	57	nr	88
g	55	50	65
tt	53	60	63
j	52	65	75
jj	48	68	75
AVERAGE	64.07	58.93	70.60

A comparison of the EoT grades with the M-T grades is best illustrated by means of Figure 4-9: Comparison of End of Term grades with Mid-Term .

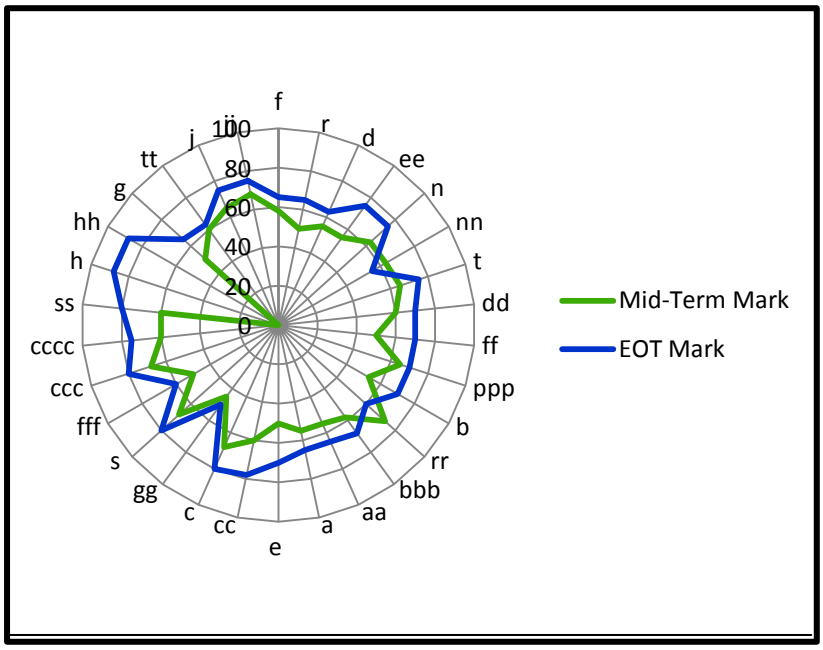

Figure 4-9: Comparison of End of Term grades with Mid-Term grades

It is clear that the above reflects, with only two exceptions, a noticeable growth being perceived by the supervisors. For the group as a whole the difference is 11.7%. Other observations are the following:

Participants h and hh were not given M-T grades by their supervisors.

In the case of nn there was an indication of a symmetrical relationship (characterised by a power struggle) between supervisor and student. In this case the supervisor might have used her power to put the student down by giving her lower grades in the EoT than she deserved.

> "...teen week drie het ons net veskriklik "ge-clash" en van toe af kon ons glad nie oor die wegkom nie" (Participant nn). [Since the third week we clashed and from that time we did not see eye to eye].

Student rr and the supervisor were also to some extent in a symmetrical relationship.

For participant gg the supervisor had prior knowledge of a problem experienced by the student which could have influenced the definition of their relationship.

> "....sy was bang vir alles ... ons het haar regtig "ge-spoonfed" en baie geworstel oor wat ons met haar moet doen ..." (Participant D) [The student was afraid of everything ... supervisors spoonfed her and grappled with this problem].

The impact of such behaviour is discussed in 4.12.

It would seem that there is a belief among supervisors that students should be underrated initially in order to wake them up. Participant B made the following statement in this respect:

> "... especially the M-T feedback ... and generally they don't do so well in the M-T ... that is the point of the M-T ... and you give them this mark of 53% and you can see on their faces all they see is 53% ..."

Higher performing students were rated relatively low compared to other students at M-T. These results can of course be construed as reflecting well on supervisor input.

The practical exam grade compared with the EoT grade in Figure 4-10: Comparison of practical exam grade with End of Term .

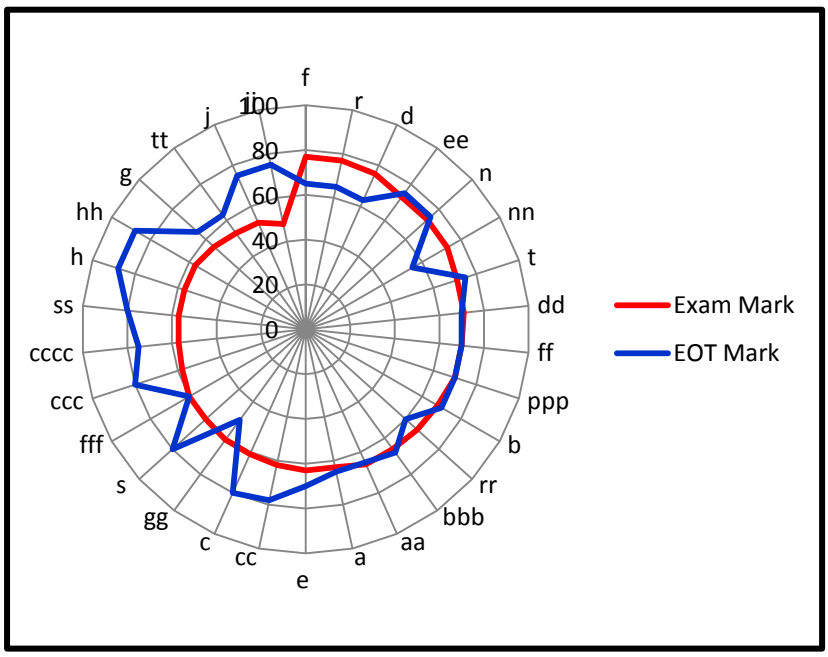

Figure 4-10: Comparison of practical exam grade with End of Term grade

Observations that can be made from this comparison include the following:

- In general high performing students in the 70% range were underrated 4.8% by their supervisors with very high performers more so than others.

- Medium performing students in the 60% range were overrated 4% on average by their supervisors.
- Low performing students in the 50% range were overrated 22% by their supervisors.

The implications of the observations given above will be incorporated in the triangulation phase.

4.8 Nature of feedback by supervisors based on comments in the Work Habits Report

Since matrix supervision was employed, the supervisors all sat together when they wrote each student's report. It was not always possible to identify who made a specific comment as the comments were more collective in nature. In that case the combined comments were assigned to all supervisors present in discussing the WHR and only where it was clear who (which supervisor) made a specific comment about a student is it indicated in the table in Appendix N and taken into consideration in the results presented here.

Similarly to the feedback received from the supervisors in section 4.6, these remarks were distilled to indicate only whether the supervisor was critical or positive in her feedback incorporated in the report. For the individual supervisors the combined results of both M-T and EoT are presented in Figure 4-11: Feedback by supervisors on Work Habits Report.

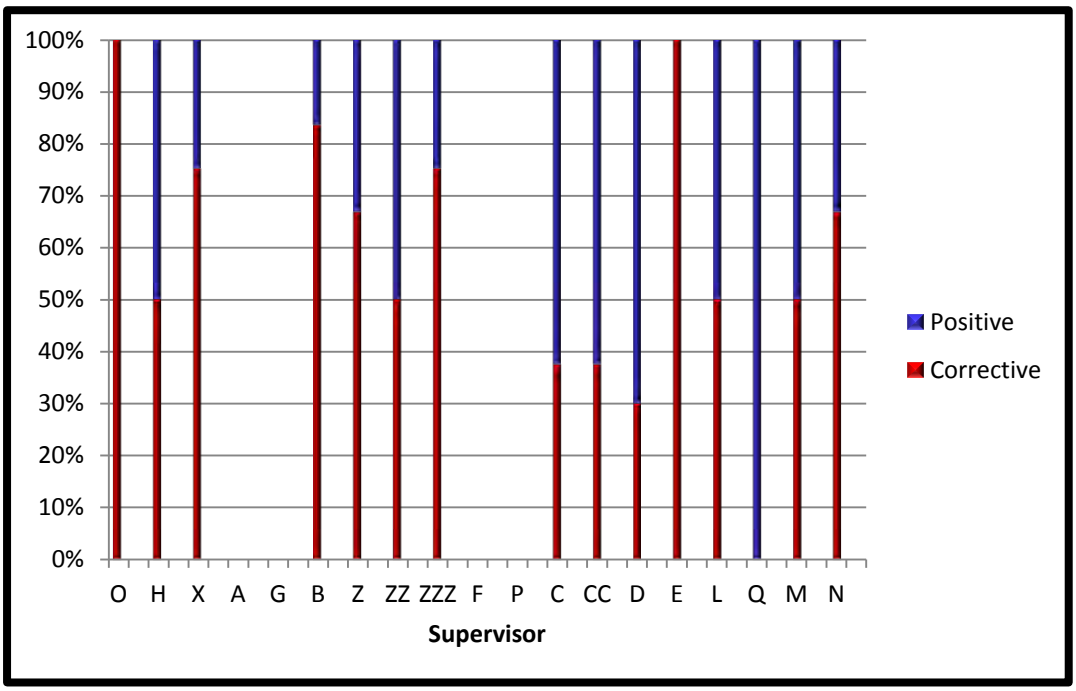

Figure 4-11: Feedback by supervisors on Work Habits Report

Analysing the feedback received by the three groups of students, based on their performance in the practical exam, shows that there was a marked difference between M-T and EoT feedback.

Table 4-19: Supervisor feedback in Work Habits Report for three levels of student performance

Student performance range	Mid-Term feedback		End of Term feedback	
	Corrective	Positive	Corrective	Positive
70%	83.3%	16.7%	45.5%	54.5%
60%	92.1%	7.9%	42.5%	57.5%
50%	81.3%	18.8%	30.0%	70.0%
All	86.5%	13.5%	41.3%	58.7%

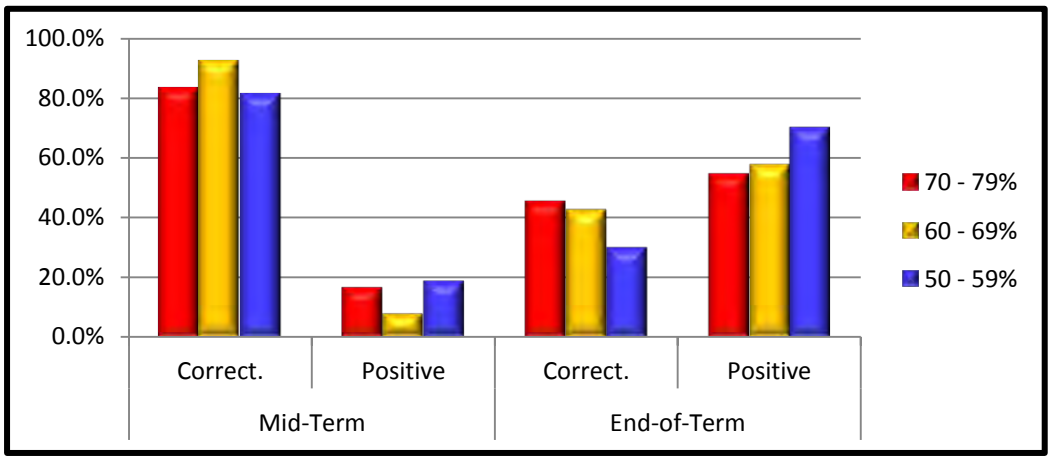

Figure 4-12: Mid-Term and End of Term supervisor feedback in Work Habits Report

4.9 Comparison of students' practical exam grade with general academic performance

Although the students were randomly placed in respect of hospitals and supervisors, there is always a possibility that the results could be skewed through the better students gravitating to those supervisors exhibiting specific traits.

In comparing the practical exam grades of the 30 students with their general academic performance (practical exam contribution excluded) for the year, it was found that the statistical correlation is fairly low at 0.372. The comparison is shown in Figure 4-13: Practical exam grade compared with general academic performance, practical exam contribution excluded.

Some correlation should be expected but the result as shown tends to eliminate the possibility that all the better students ended up by chance with those supervisors exhibiting specific behavioural traits. It would seem therefore that the learning experienced by individual students, as evidenced by their performance in the practical exam, is significantly influenced by the nature of their practical education and not solely a function of academic prowess.

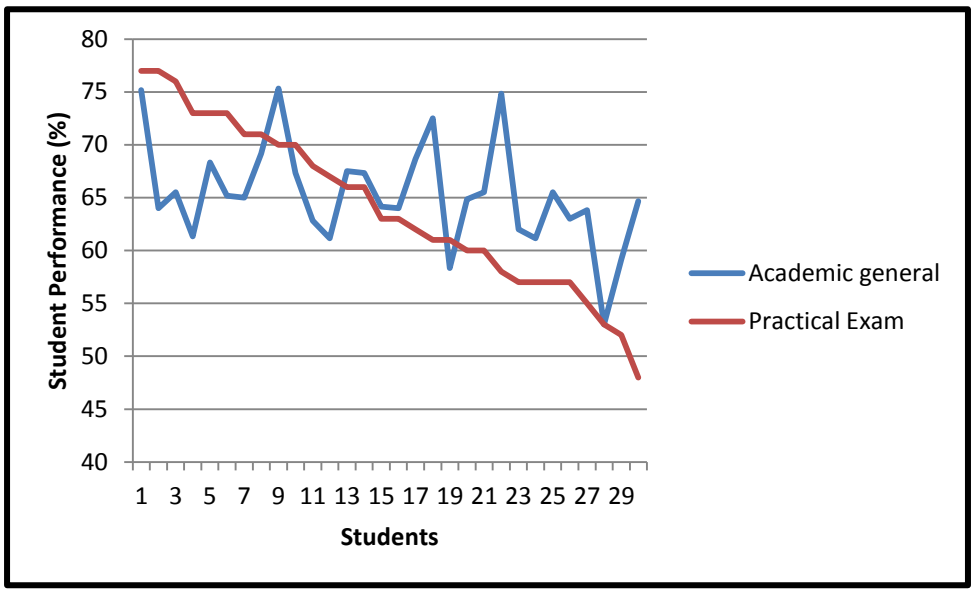

Figure 4-13: Practical exam grade compared with general academic performance, practical exam contribution excluded.

4.10 Triangulating for supervisor' interpersonal communication profiles

4.10.1 Triangulation for profile of supervisors with high performing students

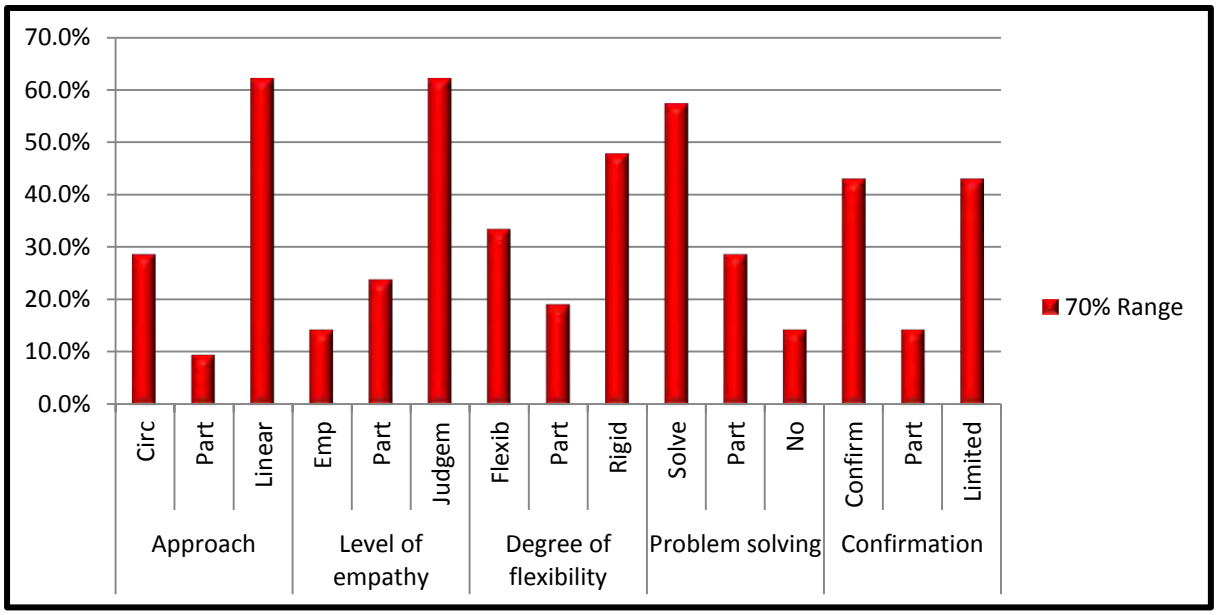

Figure 4-14: IPA Variables of supervisors with high performing students

The IPA, students' experience of the nature of the relationship with their supervisors, personal comments of the supervisors, comments in the WHR and EoT grades are depicted in **bold** just to indicate the connection among the sources which were triangulated.

The findings indicate that students who obtained grades in the 70% range were supervised by supervisors who, according to the **IPA**, were predominantly -

- linear in approach
- showed limited empathy to the point of being judgmental
- rigid in their expectations
- effective in solving problems

- confirmed students to a lesser degree

These findings were supported by the **students' experience** of these supervisors. Although acknowledging that they learned from their supervisors, high performing students experienced their supervisors as -

- authoritative (competent and able to solve problems)
- authoritarian (linear)
- giving corrective feedback (judgmental)
- giving limited positive feedback (limited confirmation)
- very polite
- open and approachable

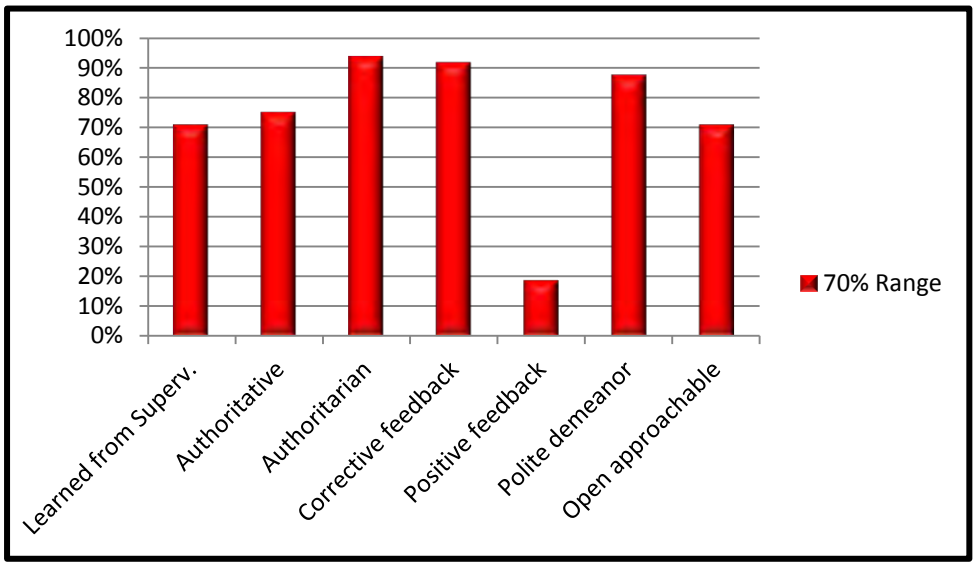

Figure 4-15: Supervisors as described by high performing students

From the **personal comments of the supervisors** in the interviews and focus groups it was observed that they were judgmental and linear in that they came across as commanding rather than recommending.

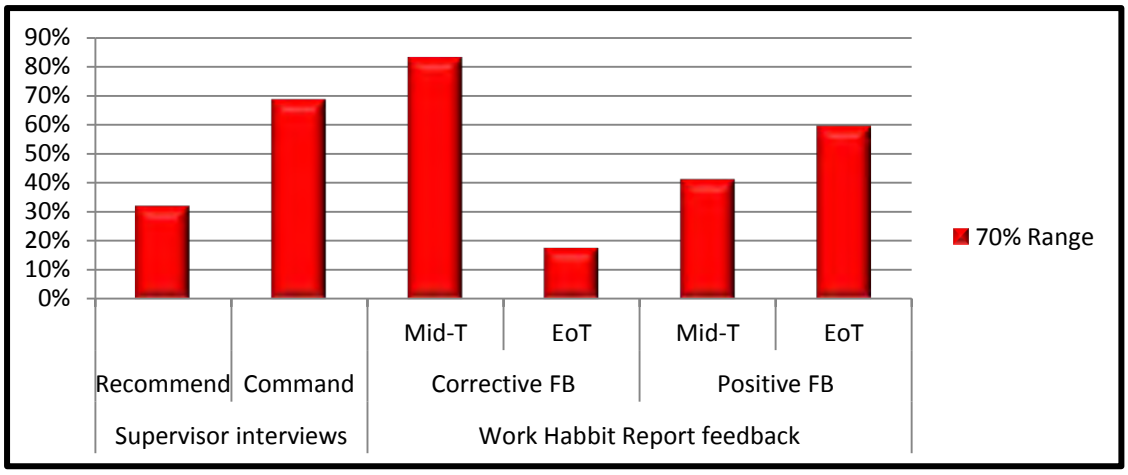

Figure 4-16: Supervisors of high performing students - interpersonal profile from interviews, focus groups and Work Habits Report feedback

From **comments in the WHR** it would seem that supervisors tended to be highly corrective while educating but were much less severe in their final report. No doubt the students improved, especially this group, but there could also be an element of "see how the student progressed under my tutelage".

From the **EoT grades** received by the high performance students in their WHR, which was on average 4.8% lower than their practical exam performance, it is clear that the supervisors of this group tended to be quite critical towards the students.

To exemplify the above with a practical example, the inputs from the various sources for Participant B (whose interpersonal communication profile matches the weighted average group profile in all respects) are given below.

Example

Participant B

IPA with comments from the psychologist

Good problem solving skills, but she is "black and white" not leaving a lot of space for human error.

Linear approach – she instructs in a linear domineering fashion

Limited empathy – she can voice an attempt of understanding which does not seem to be effective, but students may explain her as supportive out of fear of intimidation.

Rigid – she wants things her way.

Limited confirmation due to her lack of positive regard and tendency to be impatient.

Students' experience

"Sy het met jou gesit en elke dingetjie bespreek, hoekom jy dit doen en waarom jy dit doen … dit het baie gehelp" (Participant f) [She would discuss everything with you, she explained why you do certain things ... that helped a lot"].

"Sy het baie gehelp" (Participant ppp) [She helped a lot].

Supervisor's experience

"You tell them 'it is OK to be nervous but you are going to get more nervous sitting in that chair … you need to get there with the patient'" (Participant B).

Work Habits Report

Commanding

"Adapt your assessment to patients' abilities"

"Remember the treatment evaluation"

"Theory and practice needs attention" (Participant B).

4.10.2 Triangulation for profile of supervisors with medium performing students

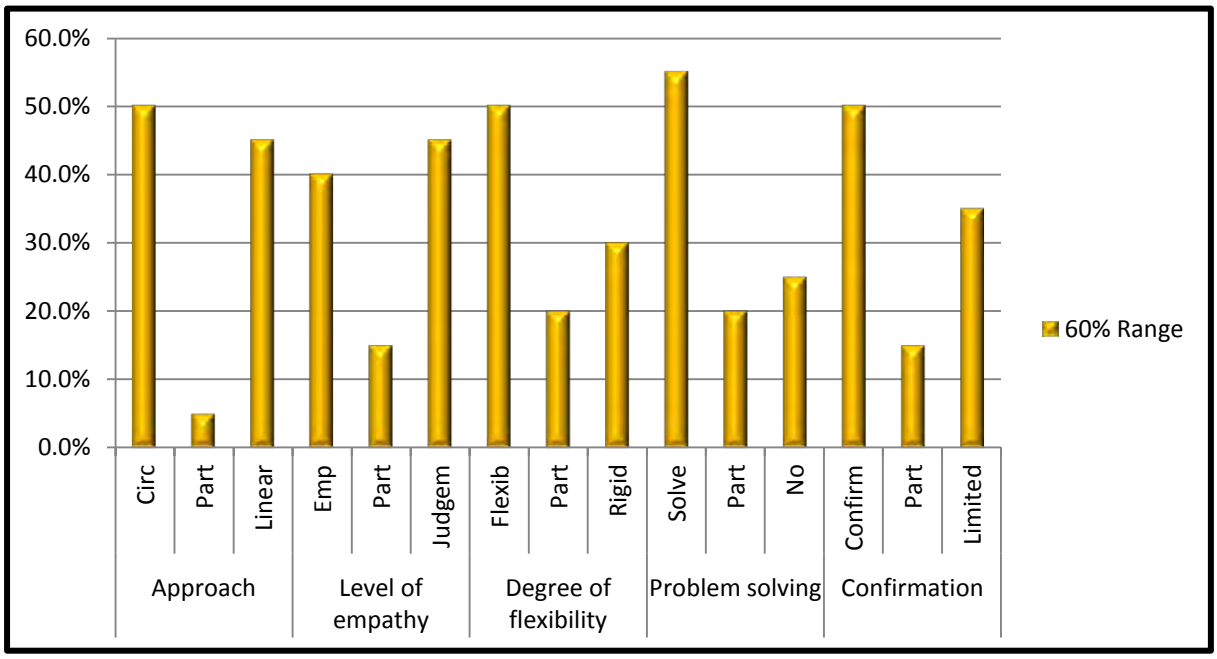

Figure 4-17: IPA variables of supervisors with medium performing students

The findings indicate that students who obtained grades in the 60% range were supervised by supervisors who, according to the **IPA**, were -

- slightly more circular than linear in approach
- not predominantly empathetic
- more flexible than rigid in their expectations
- effective in solving problems
- confirming students to a reasonable degree

These findings were supported by the **students' experience** of these supervisors.

Only just acknowledging that they learned from their supervisors, medium performing students experienced their supervisors as

- authoritative (competent and able to solve problems)

- authoritarian (linear)
- giving corrective feedback (judgmental)
- giving limited positive feedback (limited confirmation)
- polite
- reasonably open and approachable

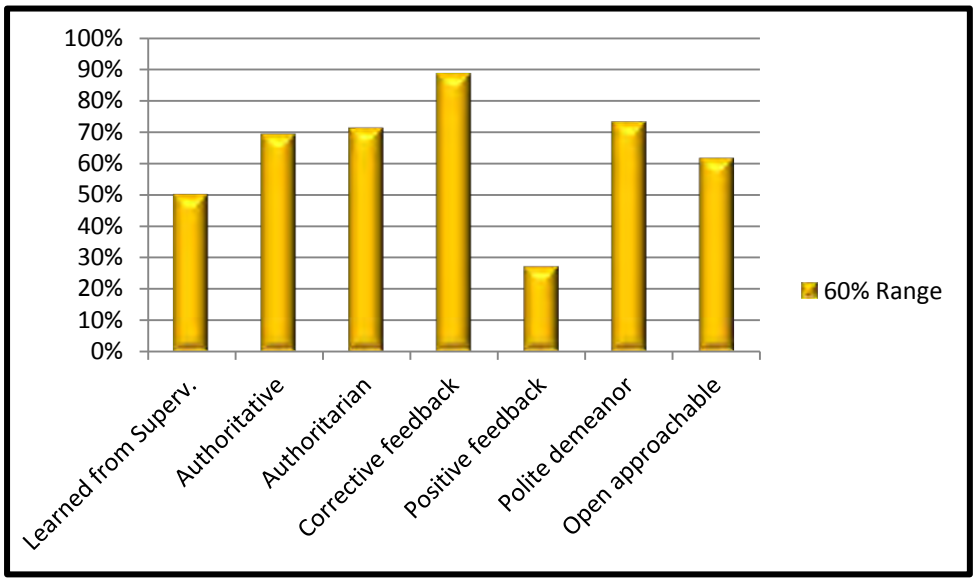

Figure 4-18: Supervisors as described by medium performing students

From the **personal comments of the supervisors** in the interviews and focus groups it was confirmed that they were authoritarian in that they came across as more commanding than recommending.

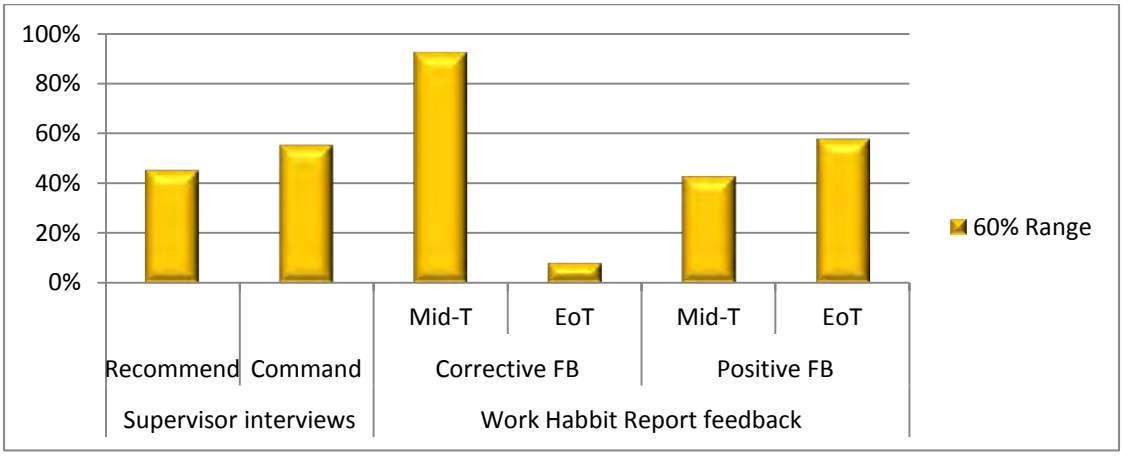

Figure 4-19: Supervisors of medium performing students - interpersonal profile from interviews, focus groups and Work Habits Report feedback

From **comments in the WHR** it would seem that supervisors tended to be highly corrective during the training but were much less severe in their final report.

From the **EoT** grades received by the medium performance students in their WHR, which was on average only 4% higher than their practical exam performance, it would seem that supervisors of this group tended to be realistic and fairly positive towards the students.

To exemplify the above with a practical example, the inputs from the various sources for Supervisor H (whose interpersonal communication profile matches the weighted average group profile in all respects) are given below.

Example

Participant H

IPA with comments from the psychologist

Good problem-solving skills since she is comfortable in her dealings with challenges.

She is circular in her approach to students as she is aware of her impact on others.

Level of empathy – she does not judge and understands students' experiences.

She is flexible - she deals with problems in a calm yet structured and effective manner.

Gives some confirmation as she communicates her understanding.

Student's experience

"... die spesifieke terapeut ... ek het baie by haar geleer ... uhm ... terwyl ... as sy ingesit het by my sessies en dan terugvoer gegee het was dit vir my die heel beste ... want dit was spesifiek ..." (Participant nn) [I learned a lot from her].

Supervisor's experience

"0ns moes heeltyd uitreik na hulle toe ... seker maak hulle is "alright" (Participant H) [We had to reach out to them to ... make sure they are alright].

Work Habits Report

Recommending

"Nice treatment ideas but can work more on grading appropriately" (Participant H).

4.10.3 Triangulation for profile of supervisors with low performing students

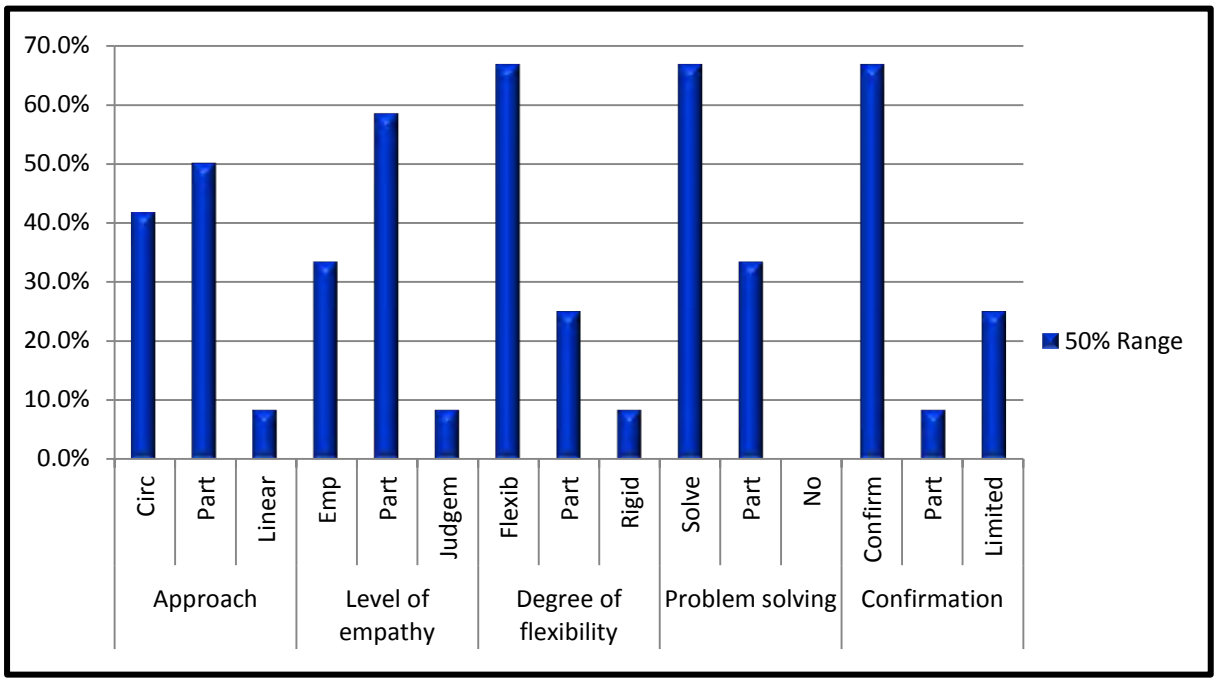

Figure 4-20: IPA variables of supervisors with low student performance

The findings indicate that students who obtained grades in the 50% range were supervised by supervisors who, according to the **IPA**, were -

- much more circular or partly so than linear in approach
- predominantly empathetic or partly so
- much more flexible than rigid in their expectations
- effective in solving problems
- confirming students to a high degree

These findings were supported by the **students' experience** of these supervisors.

Not acknowledging that they learned from their supervisors, low performing students experienced their supervisors as

- not authoritative
- limited authoritarian (circular)

- giving little corrective feedback (empathetic)
- giving lots of positive feedback (confirming)
- very polite
- very open and approachable

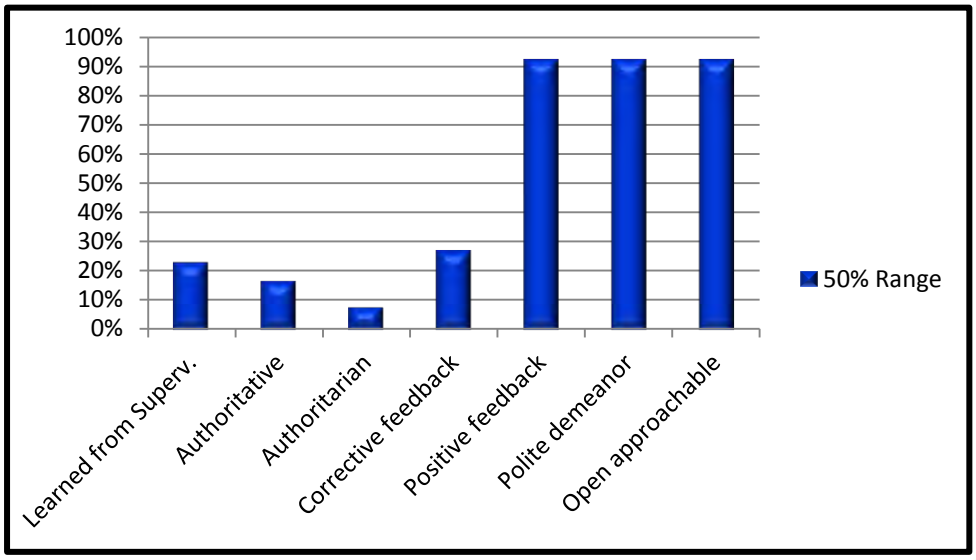

Figure 4-21: Supervisors as described by low performing students

The **personal comments of the supervisors** in the interviews and focus groups confirmed that they were not authoritarian but rather empathetic and circular in that they came across as recommending rather than commanding.

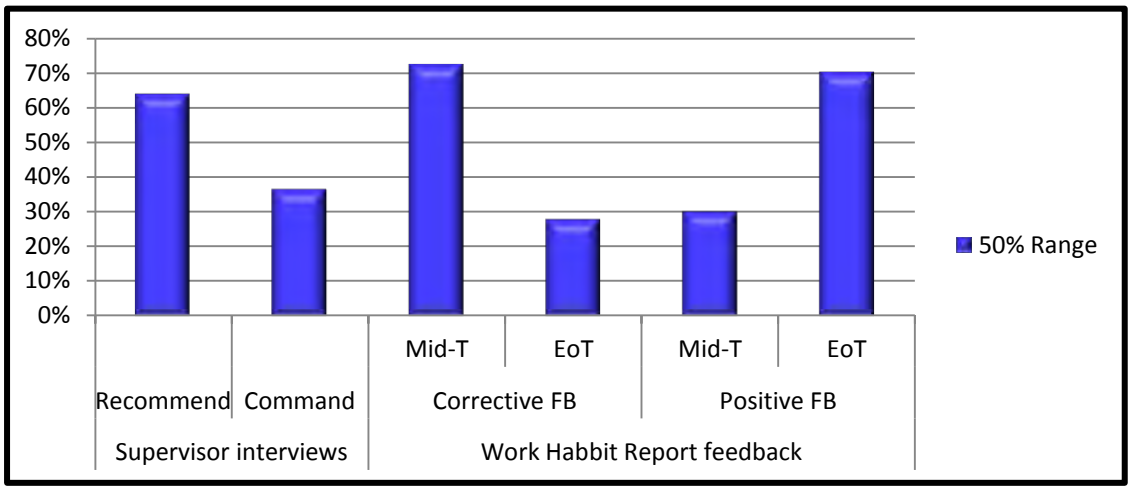

Figure 4-22: Supervisors of low performing students - interpersonal profile from interviews, focus groups and WHR feedback

From **comments in the WHR** it would seem that supervisors tended to be predominantly corrective during the training but were much less severe in their final report. They were also quite positive in their final assessment.

From the **EoT** grades received by the low performance students in their WHR, which was on average 22% higher than their practical exam performance, it would seem that the supervisors of this group tended to be highly positive about their own ability.

To exemplify the above with a practical example, the inputs from the various sources for Participant N (whose interpersonal communication profile matches the weighted average group profile in all respects) are given below.

Example

Participant N

IPA with comments from the psychologist

Partial linear - she can be perceived as direct but she does exhibit an awareness of interactional principles

Partial empathy, but not cold or judgmental

She is flexible, but professionally so.

Control - she is direct, firm and clear which keeps her in control.

Gives - She may sometimes be too direct, coming over too strong

Students' experience

I didn't find that they actually, I actually did expect to get more supervision from the therapists there, and uhm ... jaa…I think… I didn't expect … because especially in the beginning I expected more input from the therapist

… I didn't quite get what I needed.

In terms of the theory no, because I found that everone had a difference … every one uses different approaches and everyone had different versions of what one should do in terms of the NDT approach I expected to learn a bit more I didn't learn it uhm … very much uhm … but ja so ja [laughed] ja I didn't, … I felt I needed more practical experience" (Participant j).

Supervisor's experience

"Wel ... uhm ... ek is baie positief oor hierdie groep student ... veral aanvanklik het ons verskriklik baie terugvoer gehad vir hierdie groep student ... hulle het regtig terugvoer baie waardeer en goed daarop gereageer ... ... ek het regtig gevoel hulle gebruik ons terugvoer ... dit het vir my dit uhm ... positief gemaak om vir hulle terugvoer te gee " (Participant N).

Work Habits Report

Recommending

"Although self-assertiveness is satisfactory there is room for improvement" (Participant N).

4.11 Characterisation and discussion of the most effective supervisory profile

In the above triangulation of the data generated and analysed from the IPA, focus groups, one-on-one interviews, of both students and supervisors and the WHR relative to the grades students obtained in their final practical exam in the physical field, the supervisory profile which emerged as most effective in terms of student performance is depicted in Table 4-20: Profile of effective supervisors.

Table 4-20: Profile of effective supervisors

Theme	Sub-theme*	Category
Supervisors' level of competency	Clinical reasoning skills	Authoritative - Deep understanding of content. Effective problem solving skills.
	Teaching skills	Facilitates knowledge transfer and learning.
Supervisors' interpersonal communication	Demeanour	Polite - respects and treats student with dignity.
	Approachability	Open and approachable within reason.
	Communication style	Authoritarian / Commanding.
	Approach	Linear.
	Degree of flexibility	Rigid.
	Level of empathy	Limited empathy.
	Confirmation	Limited confirmation.
	Feedback	Critical & corrective (standard-driven), limited positive.
Supervisors' impact on students' clinical reasoning skills	Learning from supervisor.	Clinical reasoning ability enhanced
	Respect for supervisor.	Supervisor perceived as authoritative and worth imitating.

* Note that the themes used in the generation and analyses of data from the various sources that were investigated are now defined as sub-themes in order to put the full picture in context.

This profile, which would seem to be somewhat at odds with conventional wisdom and contrary to findings in available literature, will now be discussed in more detail.

4.11.1 Supervisor's level of competency

From the results it would seem that supervisors need to be competent in two discrete areas to be effective. First of all, the supervisors should be well versed (authoritative) in the content and process of clinical reasoning and secondly, they should possess the necessary teaching skills to ensure transfer of knowledge.

i. Authoritative in respect of clinical reasoning skills

Supervisors of students who obtained grades in the 70% range were perceived by them as authoritative in their field of practice. Those perceived as professionally authoritative (experts in the modes of clinical reasoning as well as critical and creative in their thinking process) naturally expected students to embrace the same high standards. This finding is in line with the findings of Cristie et al. (1985b) who indicated that effective supervisors are competent and skilled clinicians (Richard, 2008; Hummell, 1997; Christie, Joyce, & Moeller, 1985b).

A causal argument can therefore be made for the competent supervisors having more to offer their students by setting high standards for them, (Mason, 2002), and who, in return (if they have the necessary respect for their supervisors' professional ability), will feel obliged to live up to those high standards.

ii. Teaching skills – facilitation of experiential learning

From the findings and results it is clear that effective supervisors tended to demonstrate patient assessments and treatment first before expecting the students to do it themselves. Once the students were allowed to perform these they would then critique their performances during feedback sessions though not always in a complimentary way. First of all in the written work and then while the students are practising. This teaching approach is in line with the approach as suggested by Barr (1987).

These supervisors would critique the students' performances during feedback sessions

In the focus groups and one-on-one interviews the high performing students often declare "I learned much from her", or words to that effect, about their supervisors. Although they were not keen on the authoritarian style, often displayed by their supervisors, it is clear that the more effective supervisors nevertheless engaged the students actively in a learning process. Authoritative supervisors challenged and guided students to develop their clinical reasoning skills. Although the argument supporting this phenomenon can be described as developmental or mechanical, there is again a strong causal element present.

For students to be creative and critical in their application of clinical reasoning skills they would supervisors who would set an example as a model setting participant, but who would also "convey technical expertise and theoretical knowledge" (Yalom, 2005, p. 548) while facilitating experiential learning. Those students would besides imitating their supervisors also strive to gain their approval by working harder (Yalom, 2005). Supervisors are meant to act as teachers (Chur-Hansen & McLean, 2006) an idea that was already put forward centuries ago by Plato who stated that. "... because the goal of education is to teach the pupil to apprehend the truth himself, does not mean that he is simply to be left alone ..." (Wild, 1946, p. 69). He was also of the opinion that it is imperative to have well developed plans for education when he asserts that students should know what they are doing and why they are doing it. Without proper guidance the students "will be like sailors on a ship, without any pilot, sailing off on a voyage without any well-conceived plan". (Wild, 1946, p. 72).

The clinical supervisor should thus equip the student to practice sound clinical reasoning by imparting knowledge through discussions, demonstrations, observation of the student's skills and by reflective practice. The supervisor must therefore be able to give an account of what they are doing and why they're doing it.

4.11.2 Supervisor's interpersonal communication with student

The general relationship between supervisor and high performing student could best be described as complementary.

i. Demeanour

This was measured by determining whether the students experienced their supervisors as being polite during the M-T and EoT feedback sessions. Although students in this group did not perceive their supervisors as empathetic, they did experience them as polite and professional in their dealings with them. This finding is in accordance with Hummell's (1997) where students perceived effective supervisors as behaving in a professional manner.

ii. Approachability

Students in this group experienced their supervisors as open and approachable within reason. It can be argued that supervisors of high performing students were confident in their work, and saw this as an opportunity for the transfer of knowledge.

iii. Communication style

The vast majority of students in the high performing group experienced their supervisors as authoritarian, and in their comments on the WHRs those supervisors themselves, came across as commanding.

iv. Approach

The IPA of supervisors of high performing students also indicated that they were highly linear in their approach which was in complete agreement with the view of those students who experienced them as authoritarian. These supervisors were in control, they led and the students followed.

An argument can be made for the competent supervisor knowing what will work and what not, having already gone through the clinical reasoning process in respect of a specific patient and having neither the inclination nor the time, because of a high work load, she does not want to get into a circular discussion with the student. She sees the student as being there to learn and takes the shortest route to impart her knowledge - with good results as can be seen from their final grades.

v. Degree of flexibility

Supervisors of high performing students tended to be significantly more rigid according to the IPA than those of low performing students.

The effective supervisor is norm orientated, expecting results and being standard driven. She knows what will work best for a specific patient, has confidence in her own judgment and is not willing to be flexible about it. The patient's well-being is her first priority and the emotional well-being of the student secondary.

This rigidity might lessen the ambiguity that often occurs in the application of clinical reasoning in the field (Gutman, McCreedy, & Heisler, 1998).

vi. Level of empathy

Supervisors of high performing students were found in the IPA to be highly judgmental.

The first priority of a competent supervisor is the well-being of the patient and she sees the student as being there to learn. As far as the learning is concerned her goal is therefore to impart the required knowledge in the limited time available. The most effective way of achieving this is to involve the student in the clinical reasoning process and then tell her outright what she is doing wrong, the emotional impact of this on the student is not necessarily a high priority for her and though certainly uncomfortable for the students, based however on their performance in the final exam, this approach would seem to be effective. In contrast, a very empathetic attitude towards the students would seem to reduce the pressure on them to perform.

vii. Confirmation

Supervisors of high performing students gave some confirmation but noticeably less so than supervisors of low performing students.

viii. Feedback

High performing students rated their supervisors high (≈90%) on corrective feedback and low (19%) on positive feedback. The supervisors on the other hand, based on their written comments in the WHRs, tended to be highly corrective in their

comments at M-T but substantially less so at EoT. However, ultimately it is how the student experiences the supervisor's feedback that would impact most on her performance and the picture as far as that is concerned is unambiguous.

Arguments that can be put forward to explain the WHR results include the following:

The WHR comments were in writing and often a joint effort of the supervisors at a particular hospital. They should therefore be expected to be more agreeable in nature.

No supervisor would be easily more critical at the EoT than at M-T as this would indicate that the student had not progressed at all under her tutelage.

An argument can be put forward that the corrective feedback given by the effective supervisor can only improve the student's clinical reasoning skills.

4.11.3 Supervisor's impact on student

The effect the supervisor has on the behaviour of the student, and ultimately whether this enhances the students' clinical reasoning skills, is determined by whether she is respected and perceived as a role model worth imitating and to what extent the student actually benefits by learning from her supervisor.

i. Learning from the supervisor

High performing students generally felt that they learned much from their supervisors. It can be argued that the higher performing students benefited from having a supervisor that demonstrated the clinical reasoning process competently, set high standards and gave clear direction, albeit in a rather authoritarian or commanding manner characterised by being linear and rigid. The effective supervisor is furthermore not strong on empathy and confirmation but rather prefers to give unambiguous critical and corrective feedback.

ii Respect for supervisor and seeing her as a role model

Supervisors of high performing students were clearly perceived as being authoritative in stark contrast to supervisors of low performing students.

In the majority of cases the supervisor is usually looked upon as the expert and role model. Whether this perception remains depends on the supervisor's conduct. If the supervisor's behaviour reflects respect for the student, and a concern for his/her progress, the feedback to the student will be reinforcing. If the student on the other hand does not regard the supervisor's opinion, the feedback received will lose some of its reinforcing value.

The following five elements of respect are suggested by Egan (2002): Do no harm, be competent, be committed, help (students) place demands on themselves, and assume that (students) want to work more effectively.

4.11.4 Summary

The more effective supervisors, in addition to being professionally competent and good teachers, polite, fairly open and approachable, were also quite authoritarian in terms of setting standards, giving clear instructions, expecting a clearly defined level of performance which was not negotiable and were not averse to correct or criticise. They were furthermore not very empathetic towards the students, gave only limited confirmation and little positive feedback and kept a professional distance.

This is in contrast to the literature. Research conducted by Christie, Joyce and Moeller on American occupational therapy students and fieldwork supervisors found that effective supervisors have excellent interpersonal communication skills, such as flexibility and adaptability to meet the individual needs of their students (Mulholland & Derdall, 2005; Christie, Joyce, & Moeller, 1985b). Hummel (1997) who, at an Australian university, researched the first to fourth year students' perceptions of an effective occupational therapy fieldwork supervisor, found similar results in the way the students experienced their supervisors' interpersonal communication skills. The results also indicated that students valued supervisors who were approachable, flexible, showed empathy and respect, listened to their opinions and ideas, took an interest in them, and were sensitive to each student as an individual (Hummell, 1997). Kumbuzi et al. (2009) found in Zimbabwe that students described effective supervisors as flexible, empathetic, circular, friendly and giving a lot of confirmation and positive feedback. This dichotomy will be discussed in more detail in Chapter 5.

4.12 Characterisation and discussion of the least effective supervisor profile

In the triangulation of the data generated and analysed from the IPA, focus groups, one-on-one interviews, of both students and supervisors and the WHR relative to the grades students obtained in their final practical exam in the physical field, the supervisory profile which emerged as least effective in terms of student performance is depicted in Table 4-21: Profile of least effective supervisor.

Table 4-21: Profile of least effective supervisor

Theme	Sub-theme*	Category
Supervisors' level of competency	Clinical reasoning skills	Not seen as Authoritative Good problem solving skills
	Teaching skills	Limited
Supervisors' interpersonal communication	Demeanour	Polite - respects and treats student with dignity
	Approachability	Open and approachable.
	Communication style	Liassez-Faire
	Approach	Circular
	Degree of flexibility	Flexible
	Level of empathy	Empathetic.
	Confirmation	Gives confirmation.
	Feedback	Gives predominently positive feedback
Supervisors' impact on students' clinical reasoning skills	Learning from supervisor.	Limited learning takes place
	Respect for supervisor.	Supervisor not seen as Authoritative and worth imitating
*It needs to be pointed out that the themes used in the generation and analyses of data from the various sources investigated are now defined as sub-themes in order to put the full picture in context.		

This profile will now be discussed in more detail using the same format as in 4.11.

4.12.1 Supervisors' level of competency

i. Authoritative in respect of clinical reasoning skills

The supervisors of low performing students were not seen by the latter as being authoritative at all. Although not analysed in detail, it was clear that these supervisors on average had less clinical experience than those of the high performing student group.

ii. Teaching skills – facilitation of experiential learning

The students in this group felt they missed out on learning opportunities as they were not able to observe their supervisor's treatment sessions and they perceived their supervisors as not always being able to answer their questions and giving limited and ambiguous feedback on their practical performance. The students also commented that supervisors were not experienced in handling students.

4.12.2 Supervisors' interpersonal communication with student

i. Demeanour

No discernable differences in the demeanor of supervisors of high and low performing student groups were found, while the supervisors of medium performing students were rated almost 20% lower. It can be argued that this discrepancy points to a different dynamic coming into play in the high rating for the supervisors of low performing students. Given the lower competence of these supervisors it could very well be that they were less confident and therefore more polite in their dealings with students.

ii. Approachability

Supervisors of the low performing students were experienced by these students as very open and approachable to the extent where some students saw them as friends to discuss things with, not necessarily work related.

iii. Communication style

Supervisors of low performing students acting more as colleagues and friends (parallel relationship) of the students which could occasion not much learning taking place. A parallel relationship often has a negative impact on giving formative feedback to students as was the case with participants h,hh, j and jj. Barr (1987, p. 319) states in this regard "... when it comes to feedback on her (student's) work performance, they (supervisors) find it difficult to discuss something which they feel she will not want to hear".

iv. Approach

The supervisors of low performing students were for the most part circular in their approach to the students. In the majority of cases they were aware of the impact they had on students which could have prompted a parallel relationship.

In a parallel relationship, on the whole characterised by a laissez-faire attitude by the supervisor, the latter abdicates the running of the Department to the student thus taking a load off her shoulders. The students are seen as a big help which was the case with supervisors L, M, N, Q and to some extent C and CC. In such a situation the student can expect only limited critical feedback.

v. Degree of flexibility

The less effective but flexible supervisor however, will give recognition for effort rather than end product and tends to relax expectations. She might put the students' feelings before the patient's well-being. There is also the possibility that she does not possess the required knowledge, is herself uncertain, and therefore quite willing to let the student proceed with her own ideas, even if they are not optimal. Unfortunately, if this is the case, the student is not going to learn much.

vi. Level of empathy

Supervisors of this group of students were perceived as empathic as they understood and could identify with the students' position and frustrations.

Literature on the conscious use of self in teaching students clinical reasoning skills, among other things, refers to good teaching as "the ability of the teacher to have the

"capacity for connectedness" (Palmer, 1998, p. 11) with the student ... which requires the ability to emphasis with the demands of the student role" (Haertl, 2008, p. 125)

In a four year longitudinal survey from 2004 to 2007 conducted by Kumbuzi, et al. in Zimbabwe with 108 occupational and physiotherapy students on their perception of fieldwork supervision it was found that occupational therapy students experienced effective supervisors as encouraging and supportive both on a social and an emotional level (Kumbuzi, Chinhengo, & Kagseke, 2009).

vii. Confirmation

According to their IPAs these supervisors were fairly high in giving confirmation as could be expected given their propensity for positive feedback discussed below.

viii. Feedback

These supervisors tended to give little corrective but ample positive feedback according to their students. Based on their written comments in the WHRs, their supervisors tended to be highly corrective in their comments at M-T but substantially less so at EoT. However, ultimately it is how the student experiences the supervisor's feedback that would impact most on her performance and the picture as far as that is concerned is unambiguous.

It was found that students who did not receive corrective feedback, and who were left to their own devices, didn't know how to improve and therefore had to learn by themselves, often through trial and error.

Learning by means of trial and error causes problems on various levels as a result of this.

- First of all, the supervisor does not abide by the ethical principle of beneficence.
- Secondly, students don't know how to improve if they are not aware of the mistakes they are making. Constructive meaningful feedback should be given to facilitate students' clinical reasoning and professional development.

- Thirdly, leaving students to work independently without following the proposed teaching stages (Barr, 1987) is misleading, because the students will then often follow their instincts instead of applying clinical reasoning skills.

- Finally, for teaching to be valid and reliable students need supervisors who can give specific feedback based on objective data that is justifiable (marking rubric). Vague feedback place students in a no-man's land doubting their strengths as well as areas to be improved upon.

It would seem that the ability of supervisors to pass on constructive feedback is often founded on their inner strength. "Insecure people often mistrust their own instincts. They are worried about not having the knowledge or experience to make a correct judgment" (Hagemann, 1992, p. 54)

Kumbuzi et al. in their research on *Perceptions of physiotherapy and occupational therapy students' supervision of field attachment in Zimbabwe* found that supervisors tend to overrate student performance as they fear low grades given to students may reflect their own inadequacies (Kumbuzi, Chinhengo, & Kagseke, 2009).

4.12.3 Supervisors' impact on student

i. Learning from the supervisor

This profile of less effective supervisors is based on the clinical reasoning ability of the students exposed to these supervisors in their practical fieldwork. As such the premise that they had not learnt as much as they could have is already included.

ii. Respect for supervisor and seeing her as a role model

Students perceived these supervisors as "not always competent" and by extension therefore not worth imitating.

4.12.4 Summary

The low performing students were exposed to supervisors who were perceived to be less competent, who displayed a laissez-faire style and who were generally high in flexibility, empathy, confirmation and positive feedback.

Again, as elaborated on in 4.11.4, this is not quite what was expected based on the available literature where the qualities of flexibility, empathy, confirmation and positive feedback are rated high as requirements for good supervision.

CHAPTER 5

5. CONCLUSION

This study investigated the interpersonal communication factors in the supervisory relationship that play a role in enhancing occupational therapy students' clinical reasoning during physical fieldwork education.

Sufficient evidence emerged from the study to indicate that the interpersonal communication factors identified in the supervisory relationship significantly influence the student's learning of clinical reasoning.

The research findings do not concur with the findings of other studies in respect of the interpersonal communication between supervisor and student. The reason for this is believed to be that most of the available research approaches the issue from the student's perspective which by its very nature tends to be subjective. This study on the other hand links the supervisor's behaviour to a concrete outcome - the subsequent performance of the student in clinical reasoning as determined in an independent practical exam.

The mixed methods research design as employed was essential for the integration of qualitative analysis and exam grades.

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5.1 Findings of the study

The transition to fieldwork education requires a shift of focus from classroom education to where it becomes practice. The transition is difficult and made more so by the fact that a hospital or a rehabilitation unit is not an isolated single entity but exists in a system with a multi-disciplinary team in which a collection of activities take place. In this environment the student must now adapt and develop her/his knowledge and skills to become a professional. The supervisor is expected to facilitate this process through a variety of means, all requiring effective interaction with the student, and to do this effectively the following specific supervisory traits were identified in the study.

Supervisors' level of competency

The supervisor needs to possess a deep understanding of the subject matter since critical, creative and practical thinking is not possible without content knowledge (memory thinking). Supervisors should therefore be both technical experts in their field of specialisation as well as role models who set constructive norms.

If the supervisor is professionally competent and effectively incorporates clinical reasoning in her treatment regime, she will naturally expect the student to achieve the same high standards in this regard. The supervisor should have the ability to set a "just right" challenge to students on their stage of development, i.e. primitive, hyper-mobilised or mature.

The typical student on the other hand, expects to learn from her supervisor and will strive to meet her standards if she experiences the supervisor as being authoritative and worth imitating (complementary relationship). Should the supervisor not meet these expectations, chances are that the student will not take the fieldwork education seriously and might even try to employ manoeuvres to define the relationship as between equals.

A supervisor that is skilled in clinical reasoning and transferring that knowledge (teaching) is of fundamental importance in the successful fieldwork education of occupational therapy students. These competencies are not only necessary in terms of the supervisor's ability to enhance students' professional development but they also impact on the interpersonal relationship between supervisor and student.

Interpersonal communication factors in the supervisory relationship;

Supervisors should at all times be polite in their dealings with students and treat them with respect since respect is fundamental in any relationship.

Fieldwork supervisors should be open and approachable within reason. If the students experience them as too distant they will not have the freedom to ask questions or discuss problems, which just results in a lost learning opportunity. On the other hand, if the relationship is too close, it is doubtful if the students will get the benefit of unbiased feedback.

In contrast to popular belief, an authoritarian or commanding approach by the supervisor was actually found in this study to be effective in fieldwork education.

More successful supervisors exhibited a linear, rather than circular approach in communicating with students.

It is expected of all supervisors to exhibit appropriate flexibility in dealing with students which often necessitates wisdom from the supervisor. However, the more effective supervisor tended to be fairly rigid. It was found that successful supervisors tended to be more judgmental than empathetic in their dealings with the students.

Students, who performed well in their final practical exam, received only limited confirmation during fieldwork education in contrast to their less successful peers.

In line with the above, the students seem to benefit more from critical feedback. If the feedback is overly positive the students are not really extending themselves to improve.

Supervisors' impact on students' clinical reasoning skills;

Ultimately, the effectiveness of fieldwork education reveals itself through learning from and respect for the supervisor. The students' clinical reasoning skills should show a marked improvement as a result of the supervisors' intervention in the learning process and when students respect their supervisors the latter are perceived by the students as authoritative and worth imitating.

5.2 Reflection on the findings of the study

The findings are not in line with general beliefs indicated in the literature because in current thinking, a caring, flexible and understanding approach by the supervisor encourages professional development during fieldwork education.

The perceived dichotomy between the literature and the findings of the study could possibly be explained by the fact that the research available, and referred to in Chapter 4, was largely based on the perceptions of the students rather than the

actual measurement of the educational outcome. A similar conclusion would have been reached in this study if the actual performance of the students in the final practical exam was not used as a touchstone in the determination of the most effective supervisor profile. Stated differently, if the profile of supervisors described by the students as friendly, supportive, emphatic, etc. were taken as signifying the ideal, a completely different picture would have emerged.

Students who obtained grades in the 50% range were not necessarily always supervised by less competent supervisors. Even with competent supervisors who displayed the less effective interpersonal communication profile expounded in 4.12 the students faired badly. Competent supervisors who were emphatic and flexible did not enhance the development of the students' clinical reasoning skills. In the focus group and one-on-one interviews the impression was created that they sometimes regarded the overly confident student as competent and therefore trusted that student to work without supervision.

Although scientific knowledge of a patients' physical dysfunction and possible intervention strategies are certainly essential in therapy, the therapist only becomes authoritative in the application of clinical reasoning through experience. This is evidently the purpose behind practical fieldwork education, but that is just a start. To be really competent at the level expected of a supervisor years of practical experience is required. The competent supervisors that are successful in terms of subsequent student performance know this, which might to some extent explain their behaviour. Competent supervisors would not necessarily see their communication with the student as an interactive or circular process, probably to some extent based on the belief that the student has nothing of value to add.

Inexperienced or novice supervisors on the other hand would probably welcome a circular discussion as they would not necessarily know what to do and also not feel comfortable in giving guidance. Since newly qualified supervisors have limited experience they often find it quite challenging to supervise students who might be the same age or even older than themselves. Problems are uncertainty and unease. Students question their knowledge and experience, sometimes with good reason, which can result in very uncomfortable situations, best avoided by either being friends with the students or leaving them to their own devices.

The supervisor treats real patients, often with financial implications in the private hospitals, where the result of a mishap or lapse of professional behaviour by the student could have serious consequences. There might thus be a good reason why supervisors tend to be authoritarian, that is commanding, rigid and linear, in their handling of students. However, by being more rigid than flexible, the supervisor creates boundaries or structures within which the student is expected to perform and which could also have a positive effect on the students as it lessens some of their anxiety. This is something which students readily admit they experience in the fieldwork setting since it stems from not knowing what is expected of them. Likewise, a linear approach is not necessarily experienced negatively by the student as several indicated discomfort in having to express their views in what is essentially a foreign environment for them, especially in the earlier stages of the practical fieldwork.

As for the lack of empathy displayed by the more successful supervisors (in terms of the students' subsequent performances) a number of reasons have been put forward by these supervisors themselves: work pressure, a belief that students are bound to follow the path of least resistance and would want to avoid pressure, looking for an easy way out (even to the extent where they would not hesitate to try and manipulate the supervisor). The ultimate aim of a good supervisor is to mobilise the student to take on the challenges inherent in clinical reasoning. They tend therefore to exert pressure on students to perform and as a result are not inclined to be overly empathetic.

An effective supervisor gives realistic corrective feedback, even if it seems to be overly critical, as her aim is to get the student to improve. As long as feedback is perceived by the student as being task-oriented and not a personal attack, the student will react positively. Supervisors who give unrealistic positive feedback on the other hand are not experienced by students as credible or worthy of respect, and students would therefore tend not to learn from them. As one student put it "*I also learned a lot from therapists if I can see their therapy works, then I think, wow, that is a good therapist, then I automatically have respect for that therapist and any feedback they are willing to give me I will take and really look at it…*"

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5.3 Reflection on the significance of the study

5.3.1 Development of students' professional behaviour

The findings of the study clearly identify which interpersonal communication factors in the supervisory relationship are contributing to the development of the occupational therapy students' clinical reasoning skills and therefore also their professional behaviour.

5.3.2 Supervision

From the findings interpersonal communication strategies can be identified which during physical fieldwork education will enhance the occupational therapy students' ability to apply clinical reasoning skills. The intention is to incorporate this information in the supervision workshop which is presented once a year at the University of Pretoria's Department of Occupational Therapy School of Health Care Sciences, Faculty of Health Sciences.

5.3.3 Health care

Everyone has the right to health care services according to Section 27 (1) (a) in the Bill of Rights in the Constitution of the Republic of South Africa (1996).

Every patient and client therefore has the right to receive quality occupational therapy where applicable. In order to ensure that the best care is provided, it is the obligation of the Occupational Therapy Department of the University of Pretoria to equip the occupational therapy student with sound clinical reasoning skills and the findings of this study are therefore expected to enhance the training of such students in clinical reasoning.

5.3.4 Contribution to the scientific body of knowledge

No evidence could be found that the interpersonal communication factors in the training of occupational therapy students had previously been investigated to this extent or in this specific manner. Although a lot of work has generally been done in this field, the study is unique in that the influence of interpersonal factors on the education of students in clinical reasoning was measured by means of a hard outcome, the final practical exam. This lends credibility to the findings which are expected to have an impact on the fieldwork education of occupational therapy students at this University. It could also be of value on a national as well as international level for other occupational therapy training institutions.

5.4 Reflection on the execution of the study

5.4.1 Participants

i. Inclusion of student participants

The decision to exclude from the study three students (pp, bb and p) in order to eliminate cultural influences that could skew the results, is elucidated in Figure 5-1: Comparison of End of Term and Practical Exam grades of the 33 students that consented to participate in the study. In all three cases their End of Term rating in the WHR was noticeably lower than that of other students at their level of performance. This pointed to a bias that could impact on the study as they constitute 10% of the sample. However, three people are not enough to reliably quantify the effect of this bias. Other exceptions, such as nn, rr and gg are due to defined circumstances as explained in Chapter 4.

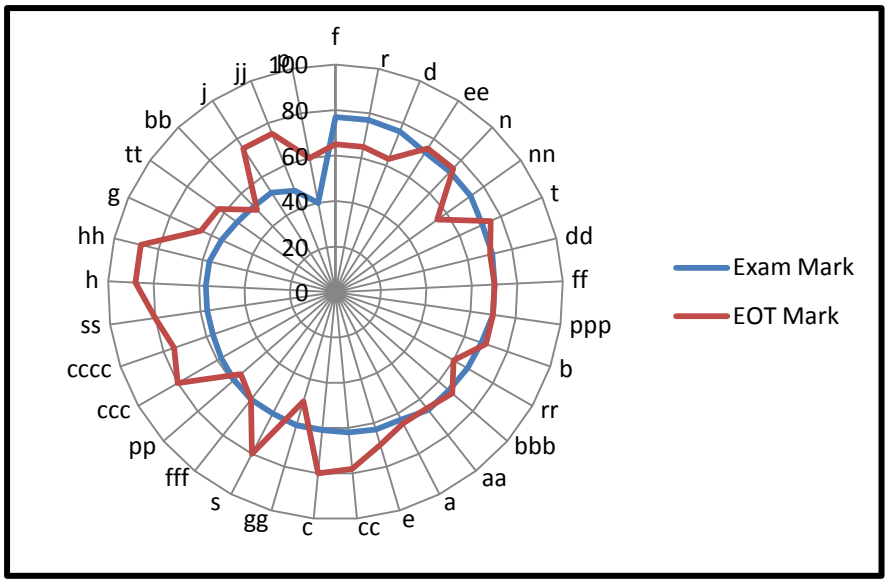

Figure 5-1: Comparison of End of Term and Practical Exam grades of the 33 students that consented to participate in the study

ii. Supervisors

Assessing clinical reasoning ability in students.

Some of the supervisors are novice therapists and lack the depth of experience to be truly competent in clinical reasoning themselves. Even if competent and effective in using the underlying principles of clinical reasoning, they might not necessarily be conversant with the relevant terminology having studied at institutions where this concept is not taught or used. Either of the above might render them unable to assess the students' level of creative clinical reasoning as defined and used in the study.

Work Habit Reports

In learning complex skills the parts making up the whole are in themselves complex so that it is not possible to see whether the student is doing well or not. It follows that feedback about how successful one is at any given time can have a powerful effect on the ease with which one learns.

It is not always clear on which grounds supervisors decided on the grades given to students in the WHR for clinical reasoning. As mentioned in Chapter 4, the grades were sometimes skewed by other considerations; at M-T some supervisors felt

students had to be made aware of their shortcomings while at the EoT there was a temptation to give higher grades as that would reflect well on their input as fieldwork educators.

The tendency of supervisors at some hospitals to do the WHR of individual students as a group rather than individual supervisors giving grades could also lead to the stronger supervisors' evaluation of a specific student prevailing in the end. However, individual ratings could also be perceived as putting certain supervisors in an exposed position should they have it totally wrong or very different from other, possibly stronger, supervisors.

Work load

Supervisors, especially those working in private hospitals, are often under severe time pressure and find it difficult to spend enough time with students. Simply allowing time for a student to express his/her thoughts and feelings requires a sacrifice from the supervisors according to Yalom, (2005). Modelling/demonstrating, observation of and feedback to the student suffer as a result.

iii. Students

Students, who had to invest all their mental and physical energy into "survival" with the demands on them, were less likely to be innovative in their ability to do creative clinical reasoning. This seems to be especially true of the first fieldwork block in which they were exposed to a clinical environment for the first time.

It should be recognised that there could also be other general barriers to creative thinking that could impact on a student's learning experience, such as the following:

False assumptions – "I am not creative".

Habits – There is only one right answer.

Attitudes/emotions – Fear of failure and risk avoidance worsened by perceived high expectations and pressure to perform.

5.4.2 Methodology applied

i. Research design

To be able to compare the interpersonal communication factors as identified through qualitative analysis with the exam results as a learning outcome a mixed methods research design proved to be invaluable. The complexity of many students and supervisors working in a matrix environment required substantial, though fairly simple, quantitative analysis.

ii. Focus groups and one-on-one interviews

In general the focus groups provided rich data from the participating therapist supervisors. Over and above the information gleaned from individuals on their approach in educating students, these sessions also tended to put the demands on the students and their general behaviour in context.

However, as could be expected it was noticeable that a few supervising participants tended to dominate the discussions in the focus groups which resulted in the views of other supervisors not being heard. This, and other group dynamics, made the follow-up through one-on-one interviews with those that did not participate fully in the group sessions essential.

iii. Capturing, transcribing, coding and analysing material

The sheer volume of work involved and the time required tended to limit the depth and scope of the study. In this case it was not possible for instance to evaluate the IPA of the students as well in order to punctuate the relationship from both perspectives.

iv. Analytical tools used

The practical exam grade as a common measure of all the inputs from the various sources enabled direct quantification and comparison of results rather than to rely on subjective interpretation.

IPA proved to be invaluable as an independent analytical tool in determining the relevant factors in the interpersonal communication in the supervisory relationship.

Statistical analysis was limited to simple averages and weighted averages as the basis for graphic presentation of the results for better understanding.

5.5 Limitations of the study

i. Emphasis on supervisor

The study was punctuated from a supervisor perspective only. From a GST point of view the behaviour of the supervisor impacts on the student who then reacts to it in a way that in its turn impacts on the behaviour of the supervisor. Thus the role students play in the interaction was not investigated in detail. This would have entailed more work than was possible in the time allowed for the study, especially as most students were exposed to more than one supervisor and vice versa. It was assumed that the summative result of the total interaction between supervisor and student in the fieldwork setting is reflected in the behaviour of the supervisor as defined for the purpose of the study.

ii. Demographic constraints

Students from only one university were included in the study. In addition they were all female and Caucasian. Again time constraints prohibited widening the study to incorporate all possibilities in terms of different educational institutions, gender and culture. As a matter of fact, the additional complexity posed by different cultures was avoided on purpose in the study.

5.6 Recommendation for further research

i. Supervision in fieldwork education

Supervisors are generally not fully equipped in all respects for their role in the fieldwork education of students. It is strongly recommended that all supervisors receive sufficient supervisory training before being expected to supervise students. The development of a condensed goal-orientated fieldwork training regime which

integrates the relevant concepts with the roles and responsibilities of the supervisor, student and faculty should be researched.

Wagner et al (Wagner, Keane, McLeod, & Bishop, 2008, p. 19) identified the general requirements for effective clinical supervision that, although referring to the clinical supervision of practicing health care professionals in NSW, could also be pursued to good effect in the fieldwork supervision of students in SA.

- "Training in the processes and purposes of clinical supervision.
- Greater flexibility in designing individual plans for clinical supervision.
- Clarification and overseeing the implementation of policies around clinical supervision.
- Systems of data collection to assess the efficacy of clinical supervision.
- An enhanced regard for the practice of clinical supervision in workplace culture".

ii. Fieldwork education in the South African context

The effect of cultural differences on the supervisory relationship in South Africa's multi-cultural society deserves to be investigated in depth.

iii. The supervisory relationship

It is recommended that future studies focus on the IPA of students as well in order to punctuate the relationship from both perspectives.

5.7 Closing remarks

Finally in respect of the interpersonal approach to human behaviour, there is no one role or pattern of interaction that is more effective in all contexts. A style or a pattern that may be highly effective in one kind of relationship may be ineffective in another. What is emerging here is that a style which is characterised by flexibility and empathy is not necessarily an effective teaching style whereas one which is characterised by a linear approach and limited empathy may prove to be significantly more effective.

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Appendices

Appendix A: Study Guide (Physical) ART 401 2007

School of Health Care Sciences Department of Occupational Therapy

Study Guide ART 401 2007

University of Pretoria

Index

UNIVERSITY OF PRETORIA
OCCUPATIONAL THERAPY
Phase III - ART 401 Student guide 2006

You have reached the final phase of your training. During Phase III you need to integrate all the knowledge and skills acquired in Phase II and I. In assessments of the final phase application of these will be incorporated. We hope you enjoy the practice of Occupational Therapy.

1. INTRODUCTION

The purpose of this module is to refine theoretical knowledge and to develop clinical skills in the physical field of occupational therapy.

Module outcome

On completion of ART 401 the student must be able to carry out effective assessment and treatment in the physical field, apply effective management strategies and maintain professional relationships.

2. ORGANISATIONAL COMPONENT

The module entails theoretic and a fieldwork.

Theory:

In Phase III the focus is on integrating the students' knowledge of physical conditions; treatment approaches, principles and techniques in different clinical settings.
The study material is presented in seminar format and tested in a written test in each of the two semesters.

Fieldwork:

The Phase III fieldwork is intended to develop general work skills and the skills and attitude needed to work as an occupational therapist in the physical field.
Students carry out one 6-week period of fieldwork in a clinical setting for clients with physical problems, according to the roster determined by the department. Clinical skills are tested during the placement on clients in the clinical setting.

Module co-ordinator:	Margot Graham
Contact details:	Room W4 SG Lourens Nursing College (012) 329-7800

Fieldwork liaisons:	
Pretoria Academic Hospital	Yvonne Raganya
Kalafong Hospital	Lydia Engelbrecht
1 Military Hospital	Margot Graham
Muelmed Hospital	Margot Graham

Resources:

Prescribed books used in Phase I and II of the BOccTher programme.
Additional material may be prescribed.
Lecturers and clinical therapists involved in the programme.

Prior knowledge

The content of Phases I and II of the programme.

Student assessment and compilation of module mark

Year mark

Method	Period	Weighting (%)
Assessment and treatment evaluation and case presentation	During and at end of fieldwork	50%
Test 2: Neurological	1st semester	25%
Test 1: Bio-mechanical	2nd semester	25%
Year mark		100%

Final mark

Method	Period	Weighting (%)
Year mark		50%
3-hour written paper	October exam period	25%
Clinical/oral exam	October exam period	25%
Final mark		100%

3. STUDY COMPONENT

Critical cross-field outcomes

This module addresses the following critical cross-field outcomes:

- Identify and solve problems using critical and creative thinking: *planning and executing appropriate treatment programmes for a variety of clients.*
- Work effectively in a team using critical and creative thinking: *professional interacting with clinical team in OT departments as well as multidisciplinary teams involved with assigned clients; contribute according to OT role in teams.*
- Organize and manage oneself and ones activities: *gather, evaluate and integrate learning material to develop an overview of treatment in the physical field; personal time management in the clinical field.*
- Communicate effectively: *professional communication with clients and team members; oral and written referrals and reports.*
- Demonstrate the world as a set of interrelated systems: *planning and implementation of appropriate, holistic, sustainable treatment programmes; contribute to comprehensive rehabilitation programmes in the fieldwork setting.*
- Be culturally and aesthetically sensitive across a range of social contexts: *Plan and implement age, gender and culture appropriate treatment delivered in a culturally sensitive manner; communicate with team members in a culturally sensitive manner.*

3.1 THEORY

Content and schedule

This component consists of seminars and discussions on a variety of subjects designed to expand and integrate information from Phase I and II and provides opportunities for students to gain insight into various applications of the profession.

Timetable

Seminar	Lecturer	Date	Time
1. Professional conduct	M Graham	9 January	10:00 – 12:00
2. OT and culture and OT culture	M Graham	15 January	8:00 – 10:00
3. Tools of Practice revisited	M Graham	15 January	10:00 – 11:00
4. Reflection and evidence	M Graham	15 January	11:00 – 12:00
5. On death and dying	A du Plessis	17 January	8:00 – 10:00
6. Neuro splinting	M Graham	12 March	11:00 – 12:00
7. Upper limb injuries	E Rudman	12 March	13:00 – 16:00
Test 1 (Neuro)	M Graham	15 March	8:00 – 10:00
Test 2 (Biomechanical)	L Engelbrecht	21 August	8:00 – 10:00

Learning outcomes - theory
Seminar 1 - 4
Integration of professional issues, including the following topics:
Professional conduct,
Tools of practice,
Reflection,
Reporting,
Ethics.

7. Upper limb injuries
Insight into the scope of upper limb and hand injuries and the occupational therapy intervention for such.

3.2.FIELDWORK

The fieldwork provides opportunities for integration of academic and practical knowledge. The purpose is the:

- promotion of clinical reasoning
- application of the treatment process, including assessment
- development of professional behaviour.

Content

Prior knowledge

The student's knowledge of conditions likely to be encountered during fieldwork in the physical field is tested in a computer-based test (CBT) at the beginning of the fieldwork period.

CBT details:

- Takes place at the beginning of week 2,
- List of conditions for quiz is given in **Appendix A,**
- Will be done by appointment at the University of Pretoria,
- Will be repeated until a satisfactory level of knowledge is reached,
- Does not contribute to the final mark.

Skills development

Occupational Therapy process

Assessment, treatment and follow up, where necessary, of clients allocated to students by clinical therapists.

The caseload should consist of six clients (e.g. in/out patients, groups/individual) from the following categories:

CATEGORY 1 – Biomechanical

Lower motor neuron lesions, orthopaedic conditions and burns.
Other appropriate conditions in the physical field

CATEGORY 2 - Neurological

Upper motor neuron lesions

The following distribution (during the fieldwork period) should be present.
At least:
1 lower limb impairment/injury
1 upper limb impairment/injury
1 severely injured patient
1 patient under 12 years
1 patient above 60 years
Refer to **Appendix B** for form for patient statistics.

There should be a balance between patients treated over a short period and a long period of time.

Student involvement with each new condition in each new field will consist of three phases. During the first phase the student observes a therapist and works under guidance. In the second phase the student develops skill under supervision of the therapist. In the last phase the student should be able to function independently in consultation with the therapist.

Phase 1 – Training
Phase 2 – Practise
Phase 3 – Independent function

At any given time during a fieldwork placement a student's involvement in patient treatment may thus be spread over the various phases of training for different clients. See **Appendix C** for treatment planning guide.

Report writing

- Refer to **Appendix D and E** for description of professional report writing and mark sheet.
- Four reports, one each week (starting week two), are written during the fieldwork.
- The therapist, in conjunction with the student, decides on which client to write a report. The purpose of the report, as well as to whom the report is to be addressed is determined by the therapist.
- **Two reports must be done in each category**.

Technical Requirements

- The report must be typed on the letterhead of the institution where the fieldwork takes place, using double spacing and should be written in the language that is appropriate for the recipient of the report.
- The font may not be smaller than 10 pt.
- The body (excluding the personal/background information) for the first three reports may not exceed two pages. The body of the fourth report may not exceed three pages.
- Students should, where possible, attach the assessment and treatment reports as an addendum to the report. (These are usually not sent with the actual report).

Submission and feedback

- The patient, the aim and the recipient of the report, are determined every Monday
- The report must be submitted to the therapist on Thursday. This is then submitted, with the comments from the therapist, to the liaison on Friday before 8:00
- The therapist may make comments and give a mark, which will be sent in a separate envelope.
- The liaison confers, where possible with the therapist before allocating a mark.
- The reports, accompanied by written commentary and the mark are handed to students on Friday afternoons during the tutor session whenever possible.

First Report

The student receives formative feedback. A mark is allocated to provide information on the level achieved, but does not count.

Second and Third Report

The student receives marks for these reports, which contribute to the final fieldwork mark.

Fourth Report (Final Report)

- This must be a discharge report addressed to an occupational therapist and should include an overview of treatment received by the client.
- During the final testing, the student presents the case on which the final report was written.
- Report must be handed in two days before the final testing date.

Fieldwork schedule

Assessment skills lab

An assessment workshop is presented after the introduction to the fieldwork just before the fieldwork block. **Attendance is compulsory**. The workshop includes a revision of assessments learnt in Phase II and demonstrations of assessments of clients from both categories.

First Visit by Liaison – assessment testing

- 10 minute unprepared assessment of two patients, one from each category (one familiar and one unfamiliar patient)
- Feedback of assessment testing (from liaison) as well as work habits report (from therapists)
- Discussion on written treatment plans

Second Visit by Liaison – treatment training

- Demonstration and discussion of treatment of clients from both categories
- Discussion of student's clients

Third Visit by Liaison – final testing

Consists of the following testing:

• Case presentation **(Case on which last report was written)**	15 minutes
• Questions on this case	5 minutes
• Treatment demonstration of patient from the other category	10 minutes
• Questions on demonstration	5 minutes

Students must demonstrate assessment and treatment procedures for physical dysfunction during testing sessions.

See **Appendix F - H** for assessment criteria and report form.

Students are responsible for the satisfactory completion of time sheets and will not be credited with marks for fieldwork before these are completed.

Responsibilities

Role of the student	Role of the therapist	Role of the liaison
Take responsibility for <u>full utilisation of the learning opportunities</u> presented by that particular clinical setting. Take responsibility for own work load and programme in terms of type of patient/client, case numbers and tasks required in each field, keep records, have regular feedback sessions with all team members and arrange with therapists for presentations. Ensure that he/she has gained experience in: • Assessment and treatment of patients in all fields of practice and of all age groups. • Assessment and treatment of performance components by using a variety of activities from all occupational performance areas (including use of therapeutic apparatus with these activities). • Assessment and treatment of all occupational performance areas. • Treatment of more than one patient simultaneously. • Stress management and relaxation therapy. • Group treatment. • A home and/or work visit with the purpose of adaptation or work placement. • The procedures involved in ordering prosthesis and prosthesis training. • Splinting Make prior arrangements with department head, for time required for essential outside appointments e.g. research, doctor's appointment. Hand to the liaison, on last day of the fieldwork, a completed time sheet (signed by both **student and therapist)** Give input on the evaluation of own work habits.	• Orientate the student to the department and the field of practice. • Introduce the student to the patients/clients assigned to him/her. • ***Demonstrate assessments, methods and treatment media for each new type of condition the student is introduced to.*** • Expose the student to as many learning situations as possible. • Advise the student in planning of treatment and day programmes. • Supervise, together with the liaison, the student's progress through the three phases of training. • Join in discussions between student and liaison • Read, offer appropriate comments and advice on all written work (including final case study). • Give feedback, **throughout** the fieldwork, on the student's level of functioning; to write two (2) reports on the student's work habits and assign her/him a mark for these, to discuss the work habit reports together with the student and the liaison. • Ensure that the work habit reports and time chart are complete and signed.	• Contact the departments timeously and finalise arrangements with the department heads. • Provide clinician with timetable for Friday after afternoon tutor sessions. • Deliver an introduction to the fieldwork to students before its commencement. • Set dates, during this introduction, for visits to students and therapists. • Visit students for training and testing on at least three occasions during the fieldwork. • Hold discussions with students and the therapists involved. • Allocate marks for written work according to the requirements set for the particular field. • Test the student's knowledge and skills during and at the end of the fieldwork. • ***Take responsibility for the final mark allocated to each student at the end of the fieldwork.*** • Be present at the feedback session on work habits between student and therapist. • ***Have a closing session with each student to check reports, minimum requirements and time charts.*** • Hand in complete reports and time sheets to the class counsellor immediately after the fieldwork.

Practical arrangements

Clinical Therapists

- Select patients for assessment testing according to student's case-load
- Discuss the diagnosis of the patient with the liaison **one day** before testing
- Plan the programme for assessment by the liaison (provision must be made for a short assessment by the liaison before testing begins)
- Allocate patients and scenario for reports to students and write comments on the report to be handed in.
- Plan the programme for the final testing with the student

Liaison

- Plan programmes with the clinical therapists
- Check case-load on each visit
- Discuss the reports with the clinical therapists
- Take responsibility for the final mark

Students

Students are responsible for handing in the following before the marks for the fieldwork will be allocated for ART 401:

FORM	COMPLETED BY:	SIGNED BY:
Evaluation of Fieldwork	Student	Student
General mark sheet	Liaison and student	Student and Liaison
Time sheet	Student	Student and clinical therapist
Work habits report: - mid-term - end-term	Clinical therapist	Student and clinical therapist
4 X reports	Student	Liaison

Learning outcomes - fieldwork

At the end of the fieldwork the student must have the knowledge and skills to:

- Independently assess patients/clients and record the findings.
- Prepare a treatment plan, which includes the treatment rationale, goals, aims and objectives for each patient/client assigned to him/her.
- Effectively implement and continuously evaluate planned treatment in the hospital and within the community.
- Regularly present appropriate verbal and written progress reports to team members.
- Use the available time effectively.
- Carry out appropriate administrative tasks.
- Make effective arrangements for the implementation of treatment.
- Write accurate professional reports.

Appendix A

Students must have the following knowledge about the conditions listed:

Definition	Cause
Distribution	Pathology
Clinical picture	Medical treatment
Complications	

Students should also have knowledge of the underlying anatomical and physiological concepts.

ORTHOPAEDIC CONDITIONS

Degenerative joint diseases	Brachial plexus injuries
Scoliosis/Lordosis/Kyphosis	Congenital dislocation of the hip
Amputations	Fractures
Conditions and injuries of the hand	

LOWER MOTOR NEURON LESIONS

Guillain Barré	Polio
Spina Bifida	Muscle dystrophy
Motor neuron disease	Diabetes

OTHER PHYSICAL CONDITIONS

Burns	Malnutrition
Rheumatoid Arthritis	Oncology
Cardiology	Blindness
Tuberculosis	AIDS

UPPER MOTOR NEURON LESIONS

Stroke:	Lesion:	(L) + (R) Hemisphere
		Brainstem
		Internal capsule
		Cerebellum
Head injury:		Open/Closed
		Diffuse/Localized

Meningitis/Encephalitis
Parkinsonism
Multiple Sclerosis
Epilepsy
Cerebral palsy
Hydrocephaly
Abnormalities of the cranium [e.g. Microcephaly and stenoses]

Appendix B

FIELDWORK – ART 401 PATIENT RECORD

NAME OF STUDENT: HOSPITAL:

No.	Name of Patient	Diagnosis	Patient Code	Date	Number of treatment sessions [1 session = 15min]									

CODE:

1. UL impairment/injury	2.LL impairment/injury	3. Severely injured patient	4. Patient younger than 12 years	5. Patient older than 60 years

Appendix C

UNIVERSITY OF PRETORIA – OCCUPATIONAL THERAPY DEPARTMENT FIELDWORK GUIDELINE – DAILY TREATMENT			
Aim[s]		Objectives	
Targets for session	Conceptual base – framework + approach [if applicable]	Principles	Physical Handling
Activity analysis and reasons for choice			Grading
Structuring	Presentation	Evaluation	

13

Appendix D

UNIVERSITY OF PRETORIA OCCUPATIONAL THERAPY	
FIELDWORK ART 401	PROFESSIONAL REPORT WRITING

DESCRIPTION

Oxford Dictionary: "... to give an account of something seen, done or studied; to report progress; to state what has been done so far"
It concerns professional, confidential reporting on occupational therapy assessments, treatment and recommendations.

AIM

An occupational therapy report is usually written in response to someone requiring information on a patient/client/child assessed and/or treated by you in order to conclude/continue the case.

Requests are usually from team-members, e.g. doctors, psychologists and teachers or from legal representatives for medico-legal purposes.

It is written for administrative purposes: to report on the handling of the person or for referral to other team members.

GENERAL REQUIREMENTS

Important aspects of professional report writing:

Appropriateness
- select information needed by the applicant to conclude the case effectively to the benefit of the client.
- Use a professional style with terminology and a language understood by the applicant.

Accuracy
- complete but concise; summarise essential information in order to compile an overview with detail as required by the applicant

Confidentiality
- reports should not contain confidential information given to you without permission from the client/patient.
- reports are not for general information and should be handled confidentially

GUIDELINES FOR WRITING A REPORT

Use the letterhead of the organisation where you are working. The report may not be longer than two pages, excluding personal/background information. The discharge report (report no. 4) may be three pages. Use a 10 pt to 12 pt font. Assessment forms and daily planning sheets to be attached at the back of the report.

FROM THE FOLLOWING, SELECT AND APPLY ONLY THE RELEVANT INFORMATION FOR EACH REPORT!

CONTENT

1. **Address**
   According to the requirements for writing a business letter. (Remember to date the report).

2. **Aim of the Report**
Start by thanking the person for the referral or restate the reason for the report, e.g. *This report is compiled in response to a request from ……organisation/person to comment on:*
- *The client's abilities at present*
- *Possibilities for work/training, etc.*

3. **Personal Information**

Client/patient/child	Address/Telephone no.
Date of birth (ID no.)	Home language
Marital status	Dependents
Level of training	Profession
Diagnosis	Date of injury/admission

4. **Background Information** (be selective)
General
Observation report
Family and social background
Training
Work (school)
- Work history
- Job description and last job

Special skills and experience
Housing
Transport
Leisure time pursuits

5. **Medical History**
- Appropriate information on medical condition(s)

6. **Assessments**
- List of assessments performed, with dates
- Briefly describe aspects appropriate to the person requesting report
- Briefly describe functional aspects resulting from the assessments.

7. **Work and/or home visit**

8. **Discussion of assessment and treatment**

Assessment	functional possibilities
	reply to request
Treatment	treatment done
	progress of patient

9. **Conclusion/Recommendation**

Appendix E

UNIVERSITY OF PRETORIA OCCUPATIONAL THERAPY	
FIELDWORK ART 401	REPORT MARK SHEET

1. **TECHNICAL CARE:**
(Neatness, legibility, resource list, etc.)

USE OF LANGUAGE:
(Grammar, correct use of terminology, professional style of writing, etc.)

	30

2. **ACCURACY, INTERPRETATION AND APPLICABILITY OF REPORT**

Accuracy, selection and thoroughness are expected in the following areas:
Theoretical base (judged from appendices)
Assessment report and formulation of problems
Planning of treatment
Execution of treatment
Evaluation of treatment
Future preview
Was aim of report fulfilled?

	70

	100

Appendix F

University of Pretoria
Occupational Therapy Fieldwork evaluation

Name:..... 2nd year/4th year Assessment /treatment demo Date:.....
Client/ evaluation details: .....
.....

Criteria	0 – 39%	40 – 49%	50 – 59%	60 – 69%	70 – 79%	80 – 100%	Weighting
Knowledge	Poor basic knowledge Lack of professional terminology	Insufficient knowledge Incorrect use of terminology	Sufficient knowledge Command of essential terminology	Good knowledge Good command of terminology	Excellent knowledge Excellent command of terminology	Outstanding knowledge Outstanding command of terminology	2nd year /50 4th year /20
Skill	Actions that harm or endanger the client	Incorrect process Slow performance and awkward handling	Correct process Unsystematic Fair performance with cueing	Correct process Systematic Good performance and handling	Skilled performance ito. speed and handling Can adapt process	Outstanding performance and integration	/20 /40
Insight	No insight into result of own actions	Insufficient insight to make correct deductions/adaptations	Basic insight (with cueing) to make some correct deductions	Good insight to make correct deductions	Excellent insight Can reason about implications and interrelations of deductions	Outstanding insight and reasoning	/20 /30
Interaction	Does not recognise the clients needs	Does not meet the clients needs	Appropriate interaction on clients level	Effective interaction Meets the clients needs in the session	Excellent interaction Can address clients needs beyond the session	Outstanding interaction and flexibility	/10 /10
Mark:							/100

Comments:

Appendix G

UNIVERSITY OF PRETORIA **OCCUPATIONAL THERAPY**	
FIELDWORK **ART 401**	**CASE PRESENTATION MARK SHEET**

PROFESSIONAL PRESENTATION Communication style Quality of visual aids, use of technological devices. Effective use of time. Professional behaviour	25	
CONTENT Selection of information • Background (Personal and medical) • Assessment • Occupational therapy (the focus should be on the treatment) • Results • Recommendations Integration of approaches, principles, activities, objectives, aims and goal. Holistic/individualistic approach	50	
ANSWERING OF QUESTIONS Correctness of facts Completeness Problem solving/alternatives	25	
TOTAL	100	

Appendix H

UNIVERSITY OF PRETORIA **OCCUPATIONAL THERAPY**	
FIELDWORK **ART 401**	**REPORT FORM**

Student: .....

Fieldwork setting: .....

Period of fieldwork: .....

Cases treated: .....

Supervision by Occupational Therapist: .....

Liaison: .....

Working hours in department: from .....to.....

Number of hours: Worked by student: .....Absent by student: .....

Reason for absence: .....

ALLOCATON OF MARKS:

Assessment testing		20
Report 2		5
Report 3		5
Final report		10
Patient presentation		20
Demonstration of treatment		20
Work habits report - midterm		10
- end term		10
TOTAL		**100**

SIGNATURE: Liaison: .....Date: .....

Student: .....Date: .....

Appendix B: Work Competence (Habits) Report

WORK COMPETENCE REPORT

MIDTERM/FINAL Year: 20..... Name of student:.....

WORK PERFORMANCE		ETHICS AND TEAM INTERACTIONS		PATIENT CARE (CONTINUED)	
Use of time: ▪ Daily and weekly planning of student's schedule ▪ Make arrangements for absence Follow rules of section ▪ Complete statistics ▪ Arrange to use areas, materials and equipment Professional appearance ▪ Comply to uniform rules Maintain work environment ▪ Neatness of work areas ▪ Take safety measures into account ▪ Take responsibility for equipment in work areas ▪ Report minimum supplies or shortages in good time Adaptability ▪ To different diagnoses and cultures ▪ To patient turnover ▪ To routine in section ▪ To requirements of the practical ▪ To unpredictable situations Work tempo ▪ Complete tasks within prescribed time limit ▪ Do assessments within time allocated ▪ Do treatment within time allocated *Comments*	10	Respect patient confidentiality ▪ Discuss patients with appropriate persons/in appropriate places Attend allocated ward rounds and clinics ▪ Help identify patients requiring occupational therapy ▪ Make appropriate contributions ▪ Make arrangements if unable to attend Communicate with occupational therapist about patient Discuss assessment and treatment of patient Find out about available resources Give feedback about patient (written and verbal) *Comments*	20	Assess each patient ▪ Select appropriate assessment procedures ▪ Make arrangements for assessment ▪ Write up assessments on prescribed forms ▪ Do re-assessments Treat each patient ▪ Plan long-term treatment ▪ Select appropriate activities ▪ Plan each session ▪ Structure treatment area ▪ Present treatment according to treatment principles ▪ Refer to occupational therapy assistant where appropriate ▪ Evaluate progress of each patient Therapeutic relationships ▪ Aware of patients needs ▪ Explain aim of treatment to patient/care-giver ▪ Handle own emotional state Arrangements for patient discharge ▪ Find out when patient will be discharged ▪ Contact family/institution to which patient will be discharged ▪ Refer patient to organisations for assistance ▪ Contact work/school ▪ Arrange follow-up if appropriate *Comments*	40

INTERPERSONAL RELATIONS		PROFESSIONAL DEVELOPMENT			
Communication with patient ▪ Gather information from patient concerning his level of functioning Communication with therapist ▪ Settle in easily into the section Communication with others ▪ Communication with assistants, clerks, cleaners and other supportive staff with respect to own area of work Handle conflict ▪ Handle conflict appropriately Self-assertiveness ▪ Towards patients ▪ Towards team members ▪ Towards therapists *Comments*	20	Identify learning needs ▪ Aware of shortcomings in knowledge and skills ▪ Develop aims and action plans for the duration of the practical Ask for assistance ▪ Ask for guidance from therapists or liaisons ▪ Asks questions Benefit from criticism and guidance ▪ Use comments and criticism positively Utilise learning opportunities ▪ Willing to learn ▪ Contact therapists or other team members with a view to obtaining more knowledge *Comments*	10	POSITIVE ASPECTS: ASPECTS REQUIRING ATTENTION: COMMENTS FROM THE STUDENT: SIGNATURE (STUDENT) DATE: SIGNATURE (THERAPIST) DATE: Score: /100 /12,5	

Appendix C: Fieldwork Evaluation Rubric

Appendix F

University of Pretoria
Occupational Therapy Fieldwork evaluation

Name:..... 2nd year/4th year Assessment /treatment demo Date:.....

Client/ evaluation details: .....

.....

Criteria	0 – 39%	40 – 49%	50 – 59%	60 – 69%	70 – 79%	80 – 100%	Weighting	Comments:
Knowledge	Poor basic knowledge Lack of professional terminology	Insufficient knowledge Incorrect use of terminology	Sufficient knowledge Command of essential terminology	Good knowledge Good command of terminology	Excellent knowledge Excellent command of terminology	Outstanding knowledge Outstanding command of terminology	2nd year /50 4th year /20	
Skill	Actions that harm or endanger the client	Incorrect process Slow performance and awkward handling	Correct process Unsystematic Fair performance with cueing	Correct process Systematic Good performance and handling	Skilled performance ito. speed and handling Can adapt process	Outstanding performance and integration	/20 /40	
Insight	No insight into result of own actions	Insufficient insight to make correct deductions/adaptations	Basic insight (with cueing) to make some correct deductions	Good insight to make correct deductions	Excellent insight Can reason about implications and interrelations of deductions	Outstanding insight and reasoning	/20 /30	
Interaction	Does not recognise the clients needs	Does not meet the clients needs	Appropriate interaction on clients level	Effective interaction Meets the clients needs in the session	Excellent interaction Can address clients needs beyond the session	Outstanding interaction and flexibility	/10 /10	
Mark:							/100	

Appendix D: Clinical Practical Exam ART 401

UNIVERSITY OF PRETORIA
FACULTY OF HEALTH SCIENCES

BOcc Ther IV
OCCUPATIONAL THERAPY 401 – ORAL/PRACTICAL: PHYSICAL

INFORMATION REGARDING THE ORAL/CLINIAL EXAMINATION FOR STUDENTS

PROCEDURE:

- Fetch the information, regarding your patient, **from the occupational therapy department of the hospital where you are doing the examination, two day before your oral examination.**
- Only the name and the diagnosis of the patient and section/ward will be given to you.
- If you wish, you may use the time available before the examination, to accumulate information about your patient, his/her condition and medical history and do an assessment on your client.
- During the examination you:
  - Demonstrate a treatment session in which you give attention to appropriate aims and/or objectives:

    10 minutes
  - Present the results of your assessment and your planned treatment programme for the patient.

    15 minutes
  - Answer questions, concerning the presentation and demonstration, asked by the examiners.

    10 minutes

The oral examination counts for 50% of the relevant ART 401 examination, i.e.:

PHYSICAL EXAMINATION	written	25
	oral / clinical	25
	TOTAL	**50**
FINAL MARK	examination mark	50
Art 401	year mark	50
	TOTAL	**100**

Appendix E: Information Leaflet and Informed Consent of Students

Information Leaflet and Informed Consent of Students

Title: Interpersonal communication factors in the supervisory relationship that play a role in occupational therapy students' clinical reasoning during fieldwork education.

Introduction: Marianne de Beer, occupational therapist and part-time lecturer at the University of Pretoria, is undertaking this study for her doctoral degree.

For this purpose she is dependent on your kind co-operation.

Purpose: This study is setting out to investigate whichinterpersonal communication factors in the supervisory relationship play a role in the occupational therapy student's clinical reasoning during fieldwork education.

Duration: Research will be conducted and audio-taped during your fieldwork block in 2007 and will consist of the following:

Tutor sessions

Your participation in the scheduled Friday afternoon tutor sessions over the six week fieldwork period at the Department of Occupational Therapy, University of Pretoria.

Focus group

On completion of your fieldwork block an 80 minute focus group will be conducted to obtain your view on the supervision you received.

One-on-one interview

One day after attending the focus group a 30 to 60 minute one-on-one interview will be held with you on similar topics discussed in the focus groups.

Risks: In the tutor sessions, questions and discussions concerning supervision and clinical reasoning, amongst others, which will be asked and facilitated by the liaising lecturers, will be audio-taped and transcribed.

Although the content of the discussions will be transcribed, you will not be identified personally. The tape will be used by the researcher only and will be destroyed once the data had been transcribed.

The focus group and one-on-one interview is not a test with right or wrong answers. It is only your point of view which will be of interest to us. Again it must be pointed out that although the content of the discussions will be transcribed, you will not be identified personally.

Financial arrangement: An incentive of R100 will be paid to each participant for both his/her participation in the focus group and in the one-on-one interview.

.

Confidentiality: Participation is completely voluntary and refusal to participate will involve no penalty

A coding system will be used so that no one outside this study will be able to identify any participant. Anonymity is guaranteed. The audiotape which will be used to record data will remain with the researcher only.

Informed consent: I consent to participate in this study and agree to the conditions above.

Name of student: _____ **Signature:** _____

Witness: _____ **Signature:** _____

Date: _____ **Place:** _____

Appendix F: Provisional Interview Guide for Focus Groups with Students

INTERVIEW GUIDE FOR FOCUS GROUPS WITH STUDENTS

Provisional document

Theme	Open ended questions	Probes
Supervision in general	If you reflect on the supervision you received the last six weeks of practice, what comes to mind?	Which aspects were positive? Which aspects were negative?
Clinical reasoning	From which style of teaching (to develop your clinical reasoning skills) did you learn best? Which modes of clinical reasoning were predominantly used?	 How did you identify your patients' problems? How did you plan for your patients' treatment?
Interpersonal factors	How would you describe the communication between you and your supervisor? How did you experience the feedback you received?	How do you feel about his/her expectations? To which extent did you feel understood? How were you approached when you felt unsure or anxious? How were your efforts praised or confirmed? How valuable was the feedback? How timely was the feedback? How frequently did you receive feedback? What do you think about the consistency of feedback?
Closure	Is there anything further you feel is important?	

Appendix G: Provisional Guide for One-on-one Interviews with Students

INTERVIEW GUIDE FOR ONE-ON-ONE INTERVIEWS OF STUDENTS

Provisional document

Theme	Open-ended question	Probes
Supervision in general	If you reflect on the supervision you received the last six weeks of practice, what comes to mind?	Which aspects were positive? Which aspects were negative?
Clinical reasoning	From which style of teaching (to develop your clinical reasoning skills) did you benefit most? Which modes of clinical reasoning were predominantly used?	How did you identify your clients' problems? How did you plan the intervention strategies?
Interpersonal communication	Tell me about the supervisory relationship. How did you experience the feedback that was given to you?	How approachable was your supervisor? To what extent could you learn from your supervisor? Which feedback meant the most to you? Which feedback did you feel was invalid?
Closure	Is there anything further you feel is important?	

Appendix H: Information Leaflet and Informed Consent of Supervisors

Information Leaflet and Informed Consent of Supervisors

Title: Interpersonal communication factors in the supervisory relationship that play a role in occupational therapy students' clinical reasoning during fieldwork education.

Introduction: Marianne de Beer, occupational therapist and part-time lecturer at the University of Pretoria, is undertaking this study for her doctoral degree.

For this purpose she isdependent on your kind co-operation.

Purpose: This study is setting out to investigate whichinterpersonal communication factors in the supervisory relationship play a role in the occupational therapy student's clinical reasoning during fieldwork education.

Duration: Research will be conducted and audio-taped on completion of students' fieldwork education during 2007 and will consist of the following:

Focus group

In the first week after completion of the students' fieldwork an 80 minute focus group will be conducted to obtain your view on the supervision of students.

One-on-one interview

In the week following the focus group a 30 to 60 minute one- on-one interview will be held with you on similar topics discussed in the focus groups.

Risks: Questions asked duringthe focus group and one-on-one interview will have no right or wrong answers, only your point of view will be of interest to us. Although the content of the discussions will be transcribed, you will not be identified personally.

Financial arrangement: An incentive of R100 will be paid to each participant for both his/her

participation in the focus group and in the one-on-one interview.

Confidentiality: Participation is completely voluntary and refusal to participate will involve no penalty.

A coding system will be used so that no one outside this study will be able to identify any participant. Anonymity is guaranteed. The audiotape which will be used to record data will remain with the researcher only.

Informed consent: I consent to participate in this study and agree to the conditions above.

Name of supervisor_____ **Signature:** _____

Witness: _____ **Signature:** _____

Date: _____ **Place:** _____

Appendix I: Provisional Interview Guide for Focus Groups with Supervisors

FOCUS GROUP INTERVIEW GUIDE WITH SUPERVISORS

Provisional document

Theme	Open ended questions	Probes
Supervision in general	If you think and reflect back on the last six weeks with the students what comes to mind?	Which aspects of supervision did you like best? Which aspects of supervision did you dislike?
Clinical reasoning	Which method of teaching do you usually use when teaching students to do clinical reasoning?	How do you prefer to learn new material yourself?
Interpersonal factors	How do you feel about giving students feedback on their clinical reasoning skills?	And in terms of mid-term and end of term feedback?
Closure	Is there anything further that you feel is of importance?	

Appendix J: Provisional Guide for One-on-one Interviews with Supervisors

INTERVIEW GUIDE FOR ONE-ON-ONE INTERVIEWS WITH SUPERVISORS

Provisional document

Theme	Open-ended questions	Probes
Supervision in general	In the focus group you said …	What do you find positive about supervision? Which aspects frustrate you?
Clinical reasoning	How do you prefer to do clinical reasoning yourself? How do you usually teachclinical reasoning skills?	Could you describe one session in which you discussed clinical reasoning?
Interpersonal factors	How do you feel about giving feedback to students? How would you like students to describe you as a supervisor?	In your opinion, what is the best way to correct a student? How do you usually approach a “difficult” student?
Closure	Is there anything further you feel is important?	

Appendix K: IPA Analysis of Supervisors' data

	Interpersonal Pattern Analysis (Supervisors):		O	H	X	A	G	B	Z	ZZ	ZZZ	F	P	C	CC	D	E	L	Q	M	N
1	Context	NA																			
2	Definition of relationship	Complementary	1	1	1	1	1	1				1	1	1		1	1	1		1	1
		Parallel																			
		Symmetrical																			
3	Emotional distance	Too close					1														
		Appropriate		1		1		1				1		1		1		1		1	1
		Too distant	1		1								1				1				
4	Clarity of self-presentation	Clear		1	1	1		1				1		1		1		1		1	1
		Partial clear															1				
		Vague	1				1						1								
5	Potential for eliciting	Acceptance		1		1	1						1	1		1		1			1
		Partial										1					1			1	
		Hostility			1			1													
6	Confirmation	Give		1		1	1						1	1		1		1			1
		Partial give										1					1				
		Limited	1		1			1												1	
7	Control of environment	Effective		1	1			1				1		1			1	1			1
		Partial											1			1				1	
		Ineffective	1			1	1														
8	Express needs	Effective		1	1			1				1		1			1	1			1
		Partial effective	1			1	1						1			1				1	
		Ineffective																			
9	Degree of flexibility	Flexible		1		1	1							1		1		1			1
		Partial	1									1								1	
		Rigid			1			1					1				1				
10	Approach	Circular		1		1	1							1		1		1			
		Partial										1								1	1
		Linear	1		1			1					1				1				
11	Meta-communication	Yes		1		1	1							1		1		1			
		Partial															1				1
		Limited/No	1		1			1				1	1							1	
12	Problem solving	Yes		1	1			1				1		1			1	1			1
		Partial				1							1			1				1	
		No	1				1														
13	Traumatic incidents	NA																			
14	Unconditional Pos Regard	Yes		1		1	1							1		1		1			
		Partial										1	1				1			1	
		Limited / No	1		1			1													1
15	Level of empathy	Emphatic		1		1	1							1				1			
		Partial										1				1				1	1
		Judgmental	1		1			1					1				1				
16	Degree of congruency	High		1	1	1		1				1		1		1		1			1
		Partial															1				
		Low	1				1						1							1	

Appendix L: One-on-one Interviews and Focus Groups with Students' data

The original data as transcribed and coded from the one-on-one interviews and focus groups or as extracted from the Work Habits Reports are not included in total in this document. To ensure confidentiality this information is archived at the Faculty of Health Sciences, University of Pretoria.

Appendix M: One-on-one Interviews and Focus Groups with Supervisors' data

The original data as transcribed and coded from the one-on-one interviews and focus groups or as extracted from the Work Habits Reports are not included in total in this document. To ensure confidentiality this information is archived at the Faculty of Health Sciences, University of Pretoria.

Appendix N: Supervisor Work Habits Reports' data

The original data as transcribed and coded from the one-on-one interviews and focus groups or as extracted from the Work Habits Reports are not included in total in this document. To ensure confidentiality this information is archived at the Faculty of Health Sciences, University of Pretoria.